

The Road Ahead for the U.S. Auto Industry



Office of Automotive Affairs
Transportation and Machinery
International Trade Administration
U.S. Department of Commerce
April 2003

The Road Ahead for the U.S. Auto Industry April 2003

Executive Summary

Domestic Market

- The U.S. market for cars and light trucks fell to 16.9 million units in 2002 – off 1.5%.
- While sales volume declined, consumer expenditures for new vehicles increased 6% to reach a record level of \$241 billion. Business expenditures fell 5% to \$135 billion.
- The 2003 market probably will contract further, slipping by 3% to 16.4 million vehicles.
- Market shares for the Big 3 (GM, Ford, and the Chrysler unit of DaimlerChrysler) have fallen to a new low, 61.3% of the 2002 market. Their volume dropped 4%.
- Market shares for the Japanese brands reached a new high, 27.9%. Volume increased 3%.
- German brands sales volume was up 4%. Market share reached a new high, 5.4%.
- Sale volume of Korean brands increased 5%. Market share reached a new high, 3.9%.
- Some industry analysts predict a 50% market share for the Big 3 within 5 years.

Production

- U.S. production of light vehicles recovered somewhat in 2002, growing 7% to 12 million units, after having skidded 10% in 2001. 1999 was record high, 12.6 million units.
- Big 3 production increased 8% to 9.2 million units.
- U.S. production by Japanese affiliates increased 7% to 2.6 million vehicles.
- U.S. production by the German affiliates was up 5% to 209,000 units.
- Some analysts expect Big 3 production to contract in 2003, their volume replaced by that of the local Japanese and German affiliates, and by imports.
- U.S. manufacturing capacity for the Big 3 is shrinking, even as they add new plants.

- Capacity of the Japanese affiliates could increase by 26% between 2002 and 2004.

Employment

- Domestic employment in the auto industry continues to decline, falling to an average of 331,100 individuals in 2002, a drop of 3% for the year.
- Auto manufacturing remains one of the economy's best paying industries. Production workers' average hourly earnings reached \$25.31 in 2002, up 5%. Earnings were 65% greater than the national average for all manufacturing industries.
- The Big 3 will begin separate negotiations this summer with the UAW to negotiate the next 4-year labor contract. Job preservation, pension expenses, and health care costs are expected to top the agenda.

International Trade

- The light vehicle trade deficit fell 1% in 2001; grew 4% in 2002 to a record \$103.4 billion.
- Imports increased 6% in 2002 to a total of \$127.4 billion.
- Export growth was outstanding, jumping 15% to \$24.2 billion.
- Inbound shipments from Canada remained the largest, up 1% to \$38.5 billion.
- Imports from Mexico fell over 4%, dropping to \$19.7 billion.
- Of the 5 major suppliers, imports from Germany grew fastest, up 19% to \$17.7 billion.
- Japan increased shipments to the United States by 13%, reaching \$34.9 billion.
- Most U.S. exports went to Canada, which increased 20% to \$13.7 billion.
- Exports to Japan fell 22%, dropping to \$407 million.
- Shipments to Mexico were unchanged at \$3.6 billion.
- Exports to Korea jumped nearly 180%, but still amounted to just \$87 million.
- Trend analysis suggests the global light vehicle deficit will continue to grow in 2003, hitting \$114 billion – an increase of 10%.
- There is no reason to expect that the light vehicle trade deficit will decline in the near term.

The Road Ahead for the U.S. Auto Industry

April 2003

GOING DOWN HILL...

In 2002, U.S. light vehicle sales remained strong in a weakened economy, dropping just 1.5% to 16.9 million units – nearly identical to the third highest total recorded in 1999.¹ (See Chart 1 and Table 4.) Many manufacturers offered especially low and no-cost financing throughout the year, perpetuating the sales incentives initiated in 2001 with great success, but at high cost to their bottom lines. Even with this support, sales of light trucks increased hardly at all in 2002 – but have grown 264% over the past 20 years. Passenger car sales continued their downward spiral, dropping 3% for the year – but have managed to remain 3% higher than two decades ago.

While light truck sales volume was unchanged, consumers set another record, spending \$137.8 billion on them– a 13% jump over 2001's record total, according to estimates prepared by the Commerce Department's Bureau of Economic Analysis (BEA). On the other hand, consumer expenditures for new cars fell to \$103.2 billion, down 3% from 2001's record.² (Table 5) Production of light vehicles recovered in 2002, improving by 7% to reach a total of 12 million units, the third highest level on record. (Table 6) Even so, imports from outside of the NAFTA region managed to increase their share of a smaller U.S. market, accounting for 19.5% of total sales. This was their highest level since 1986, when they supplied 26% of the market.³

...BUT NOT OVER THE EDGE

In 2003, consumers' total disposable personal income should continue to grow in both current and real terms, although possibly at a slower rate than in past years. Disposable personal income (DPI) reached \$7.8 trillion in 2002, up 5.7% percent for the year, according to BEA estimates. Per capita DPI averaged \$27,188 – up 4.7% in current dollars, and 3.3% in constant dollars.⁴ The nation's unemployment rate, 5.8% in both February and March, 2003, has risen significantly

¹ Automobiles, station wagons, vans with not more than 15 passenger capacity, sport and cross utility vehicles, and pickups. All rated at not more than 10,000 pounds of gross vehicle weight.

² Business purchases of new cars and light trucks both declined in 2002, dropping 4.5% to \$134.5 billion. Business expenditures peaked in 1999 at \$155.3 billion (unadjusted for inflation).

³ The industry includes sales of vehicles made within the North American Free Trade Area [NAFTA] as 'domestic' vehicles. Everything else in industry sales data is an 'import.' The industry defines an 'import brand,' as any line other than those of GM, Ford, or the Chrysler Group. Import brands include vehicles their parents produce in the United States. Note, however, that U.S. government trade data counts all vehicles made in Canada and Mexico (including those of GM, Ford, Chrysler, Honda, Nissan, Toyota, and VW) in its import tally ('true imports') for determining the balance of trade with other countries. See also footnote #10 and #33.

⁴ Current BEA data is available at: <http://www.bea.doc.gov/bea/dn/nipaweb/SeclectTable.asp?Selected=N> . Scroll to Section 2 and select Table 2.1 and Table 2.9 for annual and monthly DPI data.

from October 2000's trough of 3.9%, but probably will remain well below the June 1992 peak of 7.8%. The surge in home mortgage refinancing during 2002 helped to reduce consumers' monthly debt service requirements significantly, freeing money for other uses, including auto purchases. Federal Reserve Board data indicates that total consumer nonrevolving debt, which includes auto loans, increased 5% to \$1 billion, seasonally adjusted.⁵ At the same time, however, interest rates on consumer motor vehicle loans at banks and auto finance companies dropped sharply. BEA monthly data shows that personal outlays for interest payments of all kinds totaled \$193.7 billion in January 2002, but just \$181 billion in January 2003. Consumer interest rates are expected to remain low for most of 2003, rising modestly in the fourth quarter, if at all.

The consumer price index for new vehicles has continued to fall. The Labor Department's CPI for new cars averaged 137.3 in 2002, down 1% for the year. The index for new trucks was 147.8, down nearly 2% for the year.⁶ Most demographic factors also continue to favor the auto industry, particularly the continued strength of the post-World War II 'baby boom' generation, who are now at the peak of their vehicle purchasing power and proclivity. Adding market support are the expected first-time vehicle purchases of the baby boomers' rapidly maturing offspring, 'Gen Y.'⁷

On the down side, some economists expect that consumer confidence will remain constrained throughout 2003. In fact, in March it reached its lowest point in 10 years. Consequently, the public's willingness to make major purchases could well be tempered. Moreover, the market appears to be saturated with a large crop of almost new vehicles that have quickly suffered greatly diminished resale values – a legacy of the aggressive rebate programs that were – and are – being offered by many manufacturers to support the sale of brand-new vehicles.

At the beginning of 2003, industry sales forecasts for the domestic market ranged from as little as 15.5 million vehicles to a high of 16.7 million units. Most estimates clustered around a level of 16.4 million vehicles. While this level would be a reduction of almost 3% from 2002, it would still produce the nation's fifth highest sales volume ever. U.S. sales of non-NAFTA vehicles (i.e., 'imports') may reach 3.6 million units in 2003, 22% of the market. The war with Iraq, and possibly with global terrorist groups, might further dampen auto sales this year. Sales in the first three months by all manufacturers declined 4.4% over the same period of 2002, much less than many industry analysts had expected, given the conflict with Iraq. Several manufacturers indicated they would heavily emphasize sales incentives throughout the spring, leading some analysts to conclude that total sales could reach 16.5 million units for the

⁵ See the Federal Reserve Board's monthly consumer credit report at: <http://www.federalreserve.gov/releases/g19/>. Data showing Big 3 new and used car credit terms is at: <http://www.federalreserve.gov/releases/g20/Current/>.

⁶ Enter the BLS web site for access to the latest CPI numbers: <http://data.bls.gov/cgi-bin/dsrv?cu/>. On the fourth screen, scroll to "SS45011" to select new cars, and "SS45021" for new trucks.

⁷ The 16-64 year old group is expected to increase by nearly 4 million persons between July 2002 and July 2004. Census Bureau population projections may be viewed at: <http://www.census.gov/population/www/projections/natsum-T3.html>.

year. Three month import sales were up three-tenths of a point, while same period sales of NAFTA-produced vehicles dropped 5.5%. Imported light trucks were up 10% in the first quarter, while NAFTA light trucks dropped 7%. Imported and NAFTA cars both dropped 4%.⁸

THE BIGGEST TWO IMPLEMENT THEIR OWN BATTLE PLANS

General Motors Corporation and Ford Motor Company are the only remaining U.S.-owned automakers. Chrysler Motor Company and Daimler-Benz surprised the automotive community in 1998, crafting a \$90 billion transaction that was at the time the largest acquisition-merger ever undertaken in the industrial world. Chrysler, ranked seventh worldwide on the basis of production volume in 1997, and Daimler's Mercedes Benz unit, ranked fifteenth, created DaimlerChrysler AG (DCX), a German-registered corporation that became the world's fifth largest assembler.⁹

GM and Ford are not only the biggest two motor vehicle manufacturers in the United States, but also worldwide. In 2002, the world's 'Big 2' sold 4.8 million and 3.4 million vehicles, respectively, in the United States. Each company also sold an additional 3.6 million vehicles abroad. Overall, GM posted a 3.8% global sales increase over 2001, while Ford recorded a decline of 0.2%. Both have been losing market share at home and globally for several years. GM – which at one time commanded more than 50% of the U.S. market – had fallen to 28.1% of the market in 2000. It managed to squeeze out a small gain in 2002, reaching 28.3% – up two-tenths of a point for the year. Each tenth of a point is significant in this industry, as each tiny fraction represents some \$375 million of retail sales to consumers and business customers. Ford's 2002 share of the U.S. market was 19.9%, down 1.8 points from the year before. The company recorded its last peak share of the market in 1995 – 25.9%.

GM's revenues from automotive operations jumped 5.4% in 2002 to a total of \$159.7 billion, while Ford increased its revenues by 2.2% to \$134.4 billion. GM missed generating positive income from its global automotive operations, losing \$146 million. Nonetheless, this was a significant improvement from 2001's loss of nearly \$1.2 billion. Ford performed substantially better as well, reducing its losses from \$6.3 billion in 2001 to \$531 million. (Chart 2)

Both firms are actively engaged in recovery plans designed to significantly increase sales, to improve product quality, and to slash several billions of dollars from both their production and overhead cost structures, so that they can close the gap enjoyed by their local Japanese competitors. GM took more than 3% out of its operating costs last year, and announced this April that it would target selective reductions of up to 10% this year. Last year, Ford reduced

⁸ Current sales data is available on Ward's AutoInfoBank web page at: http://wardsauto.com/reference_sample/index.htm. If entering the address manually, take note of the underscore between "reference" and "sample."

⁹ In 2001, DCX's global sales trailed GM, Ford, Toyota, and Volkswagen in the overall ranking, ahead of PSA, Honda, and Hyundai.

operating expenses by \$2.2 billion. This April, Ford announced it has targeted \$6 billion in 'nonproduction' costs for elimination this year and next.

Both firms also are struggling to contain pension plan and health care expenses for current and retired employees that will add several billion dollars to both firms' obligations and operating expenses this year alone. Their restructuring plans also include shutting several non-productive facilities and laying off several thousand salaried and hourly workers. GM closed its Ste. Therese, Quebec, Camaro/Firebird car plant in 2002. Ford will shut the doors on its Oakville, Ontario, pickup truck plant in July of 2004, but may transfer about half of the employees to its Oakville minivan plant. Ford's Edison, NJ, light truck plant will close in 2004. Its St. Louis, MO, SUV plant may be closed in 2005.

Even so, both firms are continuing to invest heavily in new assembly plants and equipment, and for both manufacturing and product technology. For example, GM completed a \$750 million renovation of its Oklahoma City light truck plant in 2002. It launched assembly operations in 2001 in its Lansing Grand River, Michigan plant, built at a cost of \$560 million. A second new Michigan plant, under development since 2000 in the Delta township, is tentatively scheduled to open in 2006 at an estimated cost of \$1 billion. In 2000, GM broke ground for a new light truck assembly plant adjacent to existing facilities in Shreveport, LA in 2000. It will have cost an estimated \$900 million when the assembly line starts running in late 2003. In August of 2002, GM committed \$500 million for refurbishing its Lordstown, Ohio, assembly plant. It will assemble a new generation of 2004 model year small cars. The company reports that by the end of 2003, it will have replaced a reported 43% of its entire current car and light truck lineup.

Ford is investing \$2 billion to renovate its historic Rouge, MI, facility. It should be completely revamped this year, and will begin assembling Ford's crucially important, new to market F150 pickup truck by mid 2004. Ford also has committed \$140 million to revamp its Avon Lake, OH, light truck plant and will use it for both an existing and a new SUV scheduled for production in 2004. Along with its Mazda joint venture partner, Ford has committed \$644 million to revamp their Flat Rock, MI, car plant to build both Mazda sedans and the Ford Mustang starting in 2005.

GM and Ford (plus the Chrysler Group; together, the American Big 3) will begin separate negotiations with the United Auto Workers this summer, seeking to come to terms on contracts that will cover the next four years. The current agreements expire September 14. Job preservation and the cost of funding and paying pension and health care expenses for both current and retired workers are expected to be major issues. Financial analysts estimate that each vehicle produced by the Big 3 carries \$1,300 more in overhead than vehicles produced in the Japanese affiliated plants operating here, because of the Big 3's ongoing and more generous commitments to its workers. Only two of the Japanese affiliated plants (Mitsubishi's and the Ford-Mazda joint venture) are unionized. All of their workforces are younger and their retirement roles are much smaller.

BIG 3 BRANDS SLIP WHILE THE MARKET SLIDES

Vehicles classified as light trucks dominate the U.S. motor vehicle market.¹⁰ Primarily just ordinary pickups in 1981 when they represented 19% of the entire market, light trucks now rule – totaling 51.6% of all ‘auto’ sales in 2002, on a volume of 8.7 million units. Their market share has increased in each and every year for the past two decades. Over the past 5 years, the light truck share has jumped by an average of 2.7 points every 12 months. They could easily account for 60% of the U.S. auto market in 2005.

Recently revised data published by BEA indicate that total consumer spending on trucks exceeded that of cars in 2001 by nearly \$16 billion. Light truck expenditures jumped an estimated 19% to \$121.8 billion, while consumer spending on new cars increased by just 0.3% to \$105.9 billion. BEA estimates that consumer expenditures for new light trucks jumped again in 2002, rising 13% while outlays for new cars declined by 3%. Average consumer expenditures per light truck have increased by 61% since 1991, reaching \$15,830 in 2002. Average expenditures per car have grown by 43%, and now equal \$12,644. (Chart 3 and Table 5)

Manufacturers routinely can turn profits of more than \$10,000 on light trucks, while just as routinely earn just \$1,000 – or less – on small cars, which easily explains the constant rush to market of new truck models from both experienced and neophyte firms with little previous experience with these vehicles, and often none at all, outside of the United States. This trend has significant implications for the American Big 3 brands, as they have derived an ever increasing share of their sales and profits from the light truck sector. In 1986, the Big 3 sold 3.7 million light trucks. That volume represented 79% of the entire light truck market, but just 31% of their total sales. Their share of the sector climbed to 86% in 1996 on sales of 5.6 million units – 51% of their total volume. In 2002, Big 3 dependence on the sector was even greater. Nearly 64% of their volume – 6.6 million units – came from light trucks, but their market share fell to 76%.

Within the truck sector, Big 3 shares have slipped in most segments. In 1995, American brands accounted for 86% of the pickup segment, 92% of the van segment, and 80% of all SUV sales. In 2002, they supplied more of the pickup segment, 88%, but less of the van segment, 77%, and slightly less of the SUV segment, 79%. The latter was subdivided in 2000 to create a new category, Cross Utility Vehicles (CUV), which are, perhaps, best thought of as station wagons with (somewhat limited) off road capabilities, but exhibiting styling cues adopted and adapted from the traditional SUV category. The American brands supplied 36% of this category in 2002,

¹⁰ Industry sales data categorizes all vans, pickups, sport utility vehicles built on truck platforms, and ‘cross-over’ utilities built on car platforms as light trucks. (Cross-over vehicles are designed to look truck-rugged, but to ride car-soft.) Light truck sales are defined by OAA as being all of those with a gross vehicle weight not exceeding 10,000 pounds (‘Classes 1 and 2’). Note, however, that the Harmonized Tariff Schedule nomenclature adopted by most governments, including the United States, for tracking international trade, places everything listed above – except for pickup trucks – in the passenger car category. See also footnotes #3 and #33.

compared with 75% in its debut year. Had the category not existed, the American share of the original SUV category would have been 66%.

American brands also have been losing both sales volume and market share in the passenger car segments. They supplied 72% of the passenger car market in 1986 on a volume of 8.2 million units. Volume and share have fallen nearly every year since, dropping to a 46% share in 2002 on a volume of 3.7 million cars. The Big 3 have lost share in each of the passenger car segments, save one. American brands accounted for 69% of all small cars in 1986, but just 38% in 2002. Their share of mid-sized cars has slipped from 70% to 50%, while their luxury car share has fallen from 58% to 30%. The only bright spot for the American brands has been the fourth category – large passenger cars – where they retained 100% dominance. Unfortunately, large car sales declined across the period, falling by 63% to 476,500 units.¹¹

The net effect of declining shares for the American brands in light trucks (even though their volume has increased), combined with declining shares (and declining volume) in the passenger car segments, not surprisingly, is a decline in the Big 3's overall share of the U.S. market. (Chart 4) In 1965 their share exceeded 95%. In 1986, their position was 73.6%. In 2002, they accounted for just 61.3% of the overall market – the lowest overall share on record for the American Big 3. Their sales in 2002 fell 4% for the year to 10.3 million units, after having declined in both of the previous years by a total of 6%. Many industry analysts expect that the Big 3 share could slip below 50% within five years. They note the heavy schedule of new models that are being introduced by their competitors, not just in the passenger car segments, but especially in light trucks, and observe that this proliferation of new offerings probably won't be matched by the Big 3 for another year or more. They also note that even though the initial product quality of Big 3 vehicles is approaching parity with that of the Japanese brands, the market seems unaware of this fact. Moreover, long-term reliability is not yet on the same level.

The Japanese brands' share (including both imports from abroad plus units produced within NAFTA) of the U.S. market rose by 1.1 points to 26.7% in 2001, on a volume that had increased 3% to almost 4.6 million units. (1986 share: 20.6%.) In 2002, their sales reached 4.7 million vehicles, 27.9% of the total market. Japanese light truck volume increased only slightly in 2002, rising 0.6% to 1.8 million units. This increased their share by just one-tenth of a point to 20.3%, but continued a string of increases that began in 1996. In 1986, at the height of import penetration, Japanese brands held a 20.9% share of the light truck market.

Japanese shares of the passenger car segments also have increased. In 1986 their overall share was 20.5%. It has risen in almost every year since, growing 2.5 points in 2002 to 36%. Both Honda and Toyota outsold Chrysler in the U.S. passenger car market for the first time in 1997, supplying 10% and 9.9% of sales, respectively, compared with 8.9% for Chrysler. In 2002, Toyota ranked third overall with a 12.8% share, behind Ford's 14.4% share. Honda's 10.3%

¹¹ OAA relies upon Ward's Communications for most of our industry sales and production data, and for product classifications. Wards has re-categorized the Mitsubishi Diamante and the Toyota Avalon for 2003, moving both to the large car category based on their pricing and physical size. This will automatically result in diminished shares for the American brands in the future. Had this occurred in 2002, the American brand share would have been 85%.

share was fourth highest. Chrysler was fifth with a 6.5% share, just ahead of Nissan. In light trucks, both Japanese firms still were far behind in 2002, but advancing quickly. Toyota's share was 8.8% and Honda's was 4.7%. Chrysler easily remained the market's third largest supplier with a 19.3% share, after peaking in 1996 at 24.8%

Industry data show that the portion of the Japanese brand sales that are supplied from their NAFTA plants have risen steadily since 1986 (when they accounted for just 11.8% of their total), until reaching 67.4% in 1996. After that year, however, sales of non-NAFTA manufactured Japanese brands began to increase at a faster rate, resulting in the decline of the NAFTA-sourced share of their sales to 63.8% in 2001, and to 62.5% share in 2002. This happened even as Japanese producers began adding significantly to their NAFTA capacity and production.

Sales of German brands are advancing rapidly, rising steadily from their 1993 trough of 206,000 light vehicles and a 1.5% market share. Their sales increased by an average of 92,500 units per year after that, reaching 853,000 in 2000. They added 28,400 vehicles to their annual total in 2001, and followed up with an additional 33,300 in 2002, producing a volume of 915,000 units and yielding their highest market share in over a decade – 5.4%. (1986 share: 3.1%.) The light truck sector is showing the most rapid growth for the German brands, exploding from just under 1,000 units in 1996 to reach 98,900 vehicles in 2001, before slipping slightly to 98,200 sales in 2002. German car sales hit bottom in 1993 at 200,000 units, then rose steadily to 783,000 vehicles in 2001 and reached 817,000 units in 2002.

U.S. sales of Korean cars and light truck have increased sharply, bolstered by the lowest prices, the longest warranties, and by several new products with markedly improved capabilities, quality rankings, and safety ratings. Their volume has grown by an average of 56,600 units per year since sinking to 109,000 sales in 1992, reaching 618,000 units in 2001. In 2002, sales grew 5% to a volume of 650,000 units, generating a 3.9% market share – their highest level ever.¹² (1986 share: 1.1%.) Sales of Korean cars have nearly tripled since 1986, reaching 485,000 units in 2002 and producing their highest share of the car market – 5.9%. Korean light truck sales totaled just 8,000 units in 1995, their first year on the American market. In 2002, they generated a market share of 1.9% by growing sales 34% to 165,000 units. They jumped 70% in 2001.

THE INDUSTRIAL REVOLUTION IS STILL ALIVE

Market share analysis based on the traditional old-line brand affiliations doesn't adequately convey the changes taking place in the motor vehicle industry. GM now owns Saab and holds significant shares of Isuzu, Subaru and Suzuki. Ford owns 100% of Jaguar, Rover, and Volvo, and a one-third, controlling share of Mazda. Chrysler was merged with Mercedes, creating

¹² The Korean sales growth rate has not slowed as much as these numbers might suggest. U.S. sales by Daewoo dealers, no longer supported by their Korean affiliate, nor by its GM-led successors, fell 22% in 2002. Sales of Hyundai and Kia models, however, grew by 8%. Later this year, both GM and Suzuki will begin selling vehicles produced in Korea by their new joint venture, created out of the assets once owned by Daewoo.

DaimlerChrysler, which now owns a controlling 37% share of Mitsubishi Motors, and 10% of Hyundai. On a group affiliated basis, GM's effective share of the 2002 U.S. market would be 30.3%, compared with 28.3% on its own. (Chart 5)¹³ Ford's share increases to 22.7% (vs. 19.9%), while DaimlerChrysler's share jumps to 16.4% (vs 13.1%).

These arrangements are part of a broader, worldwide mosaic of acquisitions, joint ventures, and alliances that have arisen as the major world players attempt to extricate themselves from the glut of excess manufacturing capacity that exists around the world. Estimates of the excess range as high as 20 million units annually – the equivalent of 80 assembly plants. So far, that surplus has proven to be exceedingly elastic, persistently growing along with – or ahead of – every increase in global demand, so that the surplus never subsides. Nor is it likely to do so in the near future. Ward's Automotive Reports cites one recent study that estimates that by 2010, more than 18 million units of additional global capacity will have been created.¹⁴ Of that total, 8.3 million units will be located in Asia (in a region that extends from India to Japan and from Korea to Australia). And of that total, almost 60% is expected to be positioned in China. Fortunately, most of China's new capacity is expected to focus on satisfying the local market, estimated at more than 2.2 million units in 2002, expected to reach 3.9 million units this year, and to grow at an annualized rate of 9% for the next several years.¹⁵ Some analysts believe that by 2010, China will be the third largest market in the world, trailing the USA and Japan. One major producer suggests that by 2025, China could be the world's largest market for new motor vehicles.

Many of the world's major manufacturers are now active in China, including GM and Ford. Ford's investments include a 30% position in a venture with Jiangling Motors to produce transit/cargo vans, in operation since 1997. It also has a new 50-50 venture with Changan Auto Group to produce cars in a new plant with an initial annual capacity of 50,000 units. The first small car, based on the European Ford Fiesta, rolled off the line this January. A version of the European Ford Mondeo is scheduled to enter production in June. GM has two 50-50 ventures in China assembling vehicles and parts. Shanghai GM (with government-owned Shanghai Automotive Industry Corporation, SAIC) has been in operation since 1999, building mid-size Buick sedans and minivans, and producing engines, transmissions, and body stampings. Jinbei GM (partnered with FAW Jinbei Automotive) started assembling small Chevy pickups and 4-door SUVs in 2001.¹⁶

¹³ The chart includes only those affiliates controlled by the companies as of 2002. For Ford: Jaguar, Mazda, Rover, Volvo. For GM: Saab, Isuzu. If Daewoo's now defunct share was included, the GM Group share would rise by 0.2%. DaimlerChrysler (DCX) controls Chrysler, rather than vice versa (as in the case of GM and Ford). Their group includes Mercedes, Chrysler, and Mitsubishi. (DCX owns 10% of Hyundai, but does not control the company.)

¹⁴ March 3, 2003, Volume 78, Issue Number 9

¹⁵ One manufacturer – Honda Motor Company – announced last year that it is building an export-only small car assembly plant in China, focusing on both Asian and European markets. Annual capacity is 50,000 units. Production starts in 2004. Press reports indicate that Tianjin Automotive hopes to begin exporting cars to Mexico soon, followed by shipments to Canada and the USA. GM now ships 100 units per month to the Philippines from China, and reportedly is considering shipments to Japan and Taiwan.

¹⁶ In December 2002, GM announced that it has acquired a 25% share of Yantai Bodyshop, a producer in northeastern China with an annual capacity of 100,000 units. SAIC will own 25% and GM Shanghai will acquire the
(continued...)

Despite all of the massive new investment taking place in China, imports soon may obtain a larger role, in good measure because of the market liberalizing provisions required of China as the price of its admission to the WTO. Import duty rates that were as high as 220% have fallen to 38.8%, and are scheduled to drop to 25% on July 1, 2006. Quota restrictions are being liberalized and are scheduled for elimination on January 1, 2005. GM has indicated that it hopes to ship as many as 10,000 units a year to China from its Australian subsidiary. It may supplement those shipments with additional volume from India and from North America. Exports to China by all U.S. shippers of cars and light trucks reached \$25 million in 2002, up 153% for the year. Volume was 1,270 units, representing a gain of 265% for the year.

...AND NOT JUST IN CHINA

In October, 2002, GM completed protracted negotiations to acquire two Daewoo Motor Company assembly plants in Korea (plus one in Vietnam), having outbid both Ford and Hyundai in 2000 for the right to negotiate the acquisition. GM's \$251 million injection bought it 42.1% and control of the new firm, GM Daewoo Auto and Technology (GMDAT). Suzuki Motor Company invested \$89 million to acquire 14.9% of GMDAT. GM's Chinese partner, Shanghai Automotive Industry Corporation, provided \$60 million for a 10% share. The balance is held by the state-owned Korean Development Bank. Both GM and Suzuki have announced plans to market Korean-made vehicles in the United States in 2004. (Press speculation includes Canada and Mexico in those plans as well.) In 2000, GM purchased 20% of now struggling Fiat Motors, the subsidiary of Fiat S.p.A., and may end up with the whole vehicle operation, less Ferrari. Between January, 2004, and July, 2009, Fiat's parent retains the option to require that GM purchase the outstanding balance of Fiat Motors at current fair market value. Press speculation last January suggests that GM might buy out the put option by supplying \$1 billion of a proposed \$5 billion refinancing of Fiat Motors.

The global industry's restructuring has slowed, but it probably is not yet over. The major American, European and Japanese manufacturers will continue to scout out new prospects because market growth prospects in the developed world are exceedingly modest. Long term, the mature markets are adding no more than 1% annually to their ability to absorb additional output. Opportunities in the developing world, on the other hand, are excellent – especially in Asia. Unfortunately, trade barriers – both transparent and translucent – are everywhere. Thus the world's major manufacturers will continue to pursue local investments, taking local partners if necessary, both as way to obtain access to a market, and as a way to protect themselves once they are in place. They will also continue to look for outright acquisitions, mergers, and non-equity cooperative ventures that could help them share and reduce development costs, production expenses, and marketing overhead.

When the dust finally settles, it is unlikely that there will have been any significant, negative impact upon the United States. For some other countries, the prospects are not so sanguine.

¹⁶(...continued)

balance. The acquisition nearly doubles GM's existing local assembly capacity.

Local independent vehicle assemblers in the emerging markets are not likely to remain economically viable, except with the protection of their host countries; and that portends clashes with other governments seeking to expand international trade.

MORE THAN THE MANUFACTURERS ARE EVOLVING

Not only is the motor vehicle industry continuing to morph into something different, so too are the products they offer, and for much the same reasons – an imbalance between global capacity and demand, especially in key markets. The major manufacturers realize that if their largest markets aren't going to grow significantly any time soon, the only way to increase profits is to take market share from one's competitors. In fact, the 20-year trend for the U.S. suggests that growth in the United States will average, at best, 1% annually for the next several years. From this comes the strategy of fracturing existing markets into new segments. Being first in a new segment usually results not only in quick sales with higher profit margins, but also results in a higher ongoing market share. Paradoxically, the drive to differentiate vehicles is helping to eliminate the differences that have existed for years between passenger cars and consumer-oriented trucks. Demand is growing rapidly for more upright, more versatile, more comfortable 'cross-over' vehicles that combine the best attributes of passenger cars with the cargo carrying capacity and ruggedness of sport utility trucks.

The new breed of cross-over vehicles first appeared in the offerings of the foreign affiliated manufacturers in 1997-98. Honda's CRV, Mercedes' M-Class, Subaru's Forester, and Toyota's RAV4 are early examples. Additional offerings followed quickly, including Ford Escape, Pontiac Vibe, DaimlerChrysler PT Cruiser, Volvo Cross Country, and Subaru Baja. Ward's Automotive Reports recorded just 195,000 'Cross Utility' sales in 2000, but 1.2 million in 2002. Eventually, it seems, we will all be driving trucks. We just won't know it – or perhaps we will, but it won't really matter.

Another evolutionary force is the steadily growing demand for 'green' vehicles that produce significantly lower emissions and significantly better fuel economy. The public's response to the industry's initial offerings in 1997 – typified by GM's first-to-market all-battery EV-1 and Honda's similarly powered EV Plus – is best described as 'underwhelming.' Just 1,400 units in total were sold or leased during 5 years of effort by both firms. Even so, it is clear that a significant market is emerging for vehicles with reduced environmental impact, so long as they do not compromise operating economy, comfort and performance, driving range, or price. Helping to foster their demand are state (especially California) and federal government efforts to mandate improvements in both emissions and fuel economy. The U.S. Department of Transportation, administrators of the federal corporate average fuel economy (CAFE) regulations, will raise the bar for light trucks from 20.7 mpg for model year 2004 to 21.0 mpg in 2005, and by an additional 0.6 mpg in 2006 and in 2007.¹⁷

¹⁷ DOT has indicated its interest in harmonizing not only fuel regulations, but also federal safety standards as well, so that all vehicles routinely used by the public for transporting people will be subject to similar requirements.

The next step in the evolutionary chain was the introduction of 'hybrid' power systems that combine small gasoline or diesel engines with battery packs and electric motors. Honda was the first to bring this new breed to market, offering its 'Insight' in late 1999. A small two passenger vehicle reminiscent of Honda's mid-1980s CRX coupe, Insight is capable of impressive acceleration and 70 mile per gallon fuel economy. It was joined by a four passenger version of the Civic last year, which is now selling at a rate of more than 2,000 units per month. Toyota began offering the 'Prius' in 2002. It is a 4-door 5-passenger compact that travels 55 miles on a gallon of fuel. In 2002, sales totaled 20,000 units. Ford will market a hybrid version of its 'Escape' SUV later this year, neatly bridging the two trends – cross overs and green mobiles. Toyota also has announced that it will offer hybrid SUVs. GM expects to have full size hybrid pickups available in 2004, plus sedans, CUVs and SUVs in 2005. Chrysler plans to have a hybrid large pickup on the market by 2005.

Nonetheless, the hybrid electric's momentum already may be running out of juice. The industry – with the blessing and cooperation of the federal government – has enthusiastically turned its attention toward much more promising 'fuel cell' power systems.¹⁸ Similar in concept to the technology employed by NASA to provide electric power on the space shuttle, fuel cells produce electricity through a chemical reaction involving hydrogen and oxygen. The electricity energizes motors that turn the vehicle's road wheels. The concept is so promising that an earlier joint project (the Partnership for a New Generation of Vehicles, PNGV), begun in 1994 between the American industry and the U.S. government to develop a five passenger, low environmental impact, 80 mpg motor vehicle, was replaced this January with the five-year \$500 million 'FreedomCAR' (CAR = Co-operative Automotive Research) project and the companion five-year \$1.2 billion Hydrogen Fuel Initiative.¹⁹

FreedomCAR is focusing on perfecting fuel cell technology, attempting to drive down the 3-to-1 cost advantage now enjoyed by the conventional gasoline engine-transmission powertrain. The target is a power package no more expensive to produce, no more complicated to service and refuel, and no less powerful – but with significantly better fuel economy (perhaps, 100 miles per gallon equivalent) and much lower emissions. In fact, if pure hydrogen is used, the only byproduct is harmless, potable water vapor. Because fuel cells involve no moving parts, and their companion electric motors just a few – compared with hundreds of components in a conventional engine and transmission – fuel cell vehicles (FCVs) promise both greater reliability and longevity, as well as greatly reduced manufacturing complexity. Heavy foundry work (as

¹⁸ There is another, mostly ignored alternative – compression-ignition internal combustion piston engines, i.e., diesels. The latest European designs, installed in 4 and 5-passenger vehicles, quietly produce 50-70 mpg fuel economy and impressive acceleration, and easily meet current U.S. emission regulations. With access to lower-sulfur diesel fuel, they could meet the more stringent EPA Tier 2 emission regulations being phased-in next year.

¹⁹ For a detailed analysis of the fuel cell's potential for the auto industry, see the Commerce Departments' report prepared by the Technology Administration's Office of Technology Policy, entitled "Fuel Cell Vehicles: Race To A New Automotive Future." Published this January, PDF copies are available at: <http://www.ta.doc.gov/reports.htm> . See also, "The U.S. Competitive Position in Advanced Automotive Technologies," available on the same site, for an assessment of U.S. industry's patented accomplishments in this and related fields.

well as their emissions) and complex machining operations will be greatly reduced, and the industry's consumption of steel and cast iron should contract significantly. Proof-of-concept FCVs already have been assembled not only in America, but also in Europe and Japan. A small number are now on public roads, being used for validation and demonstration purposes. These could be followed by a few thousand more over the next decade, each placed in the hands of fleet operators who can arrange their own refueling service. Volume production for the mass market won't happen for some time, perhaps not before 2020. Yet to be solved are issues involving range of travel, ease and safety of refueling, packaging, production costs, and high volume manufacturing processes.

An especially major issue to be resolved by the Hydrogen Fuel Initiative is the creation of a viable infrastructure to manufacture hydrogen fuel in volume, and to deliver it safely and economically to a nationwide refueling network. Without the fueling infrastructure, there will be no large scale adoption of the fuel cell powered vehicles by the public – no matter how attractive they may be, no matter how little they may cost, and no matter how well they may perform. With the proper hydrogen infrastructure, however, U.S. consumption of petroleum could be reduced by over 11 million barrels per day by 2040. That's an amount that exceeds America's current daily imports – and an amount that equals more than half of our nation's total daily oil consumption.

General Motors provided the first glimpse of the potential offered by the FCV concept during the January 2002 North American International Auto Show, unveiling its 'AUTOnomy' to a stunned Detroit audience. Resembling nothing so much as a four-seat Le Mans race car perched atop an overgrown skateboard, AUTOnomy demonstrated the freedom of design that is possible when conventional propulsion systems no longer dictate vehicle architecture. The skateboard platform contained the entire fuel-cell electric-power generator in a plate just six inches thick. Each corner of the platform was supported by a wheel driven by an electric motor. Control of the brakes, suspension, steering, electric motors, and the power generator, was accomplished entirely with 'drive-by-wire' electronics, rather than by mechanical and hydraulic linkages. The passenger capsule – its shape totally unconstrained by mechanical necessity – sat on the platform, easily removed and quickly replaced for maintenance or whim. In fact, GM showed an entirely new and elegant 'one-box' interpretation at the Paris Auto show last September. The five-passenger 'Hy-Wire' sits on an 11-inch thick platform and requires just one electric motor driving the front wheels. GM predicts that it will have fully functional FCVs like the Hy-Wire ready for limited sales in 2010, and ready for high volume production by 2020.

DOMESTIC PRODUCTION IS GROWING – AND CHANGING

Eleven manufacturers produced cars and light trucks in the United States in 2002 – BMW, DaimlerChrysler, Ford, General Motors, Honda, Isuzu, Mazda, Mitsubishi, Nissan, Subaru, and Toyota. In 1999 production reached an all time high of 12.6 million vehicles. Volume dipped to 12.4 million vehicles in 2000, before skidding to 11.2 million units in 2001 on the heels of the terrorist strike and industry efforts to control inventory. (Table 6) The most recent data from the

Census Bureau's Annual Survey of Manufacturers (Table 7) shows that the ex-factory value of light vehicle production was \$240.4 billion in 1999, but dropped to \$201.1 billion in 2001.²⁰

All of the local manufacturers reclaimed ground in 2002, with the exception of three of the Japanese affiliated manufacturers. Cumulatively, production gains were sufficient to generate the third highest volume on record – 12 million units, an increase of over 7% for the year. (Chart 6) Output in the Big 3 plants jumped 8% to 9.2 million vehicles in 2002, recovering more than half of the 1.2 million units lost in 2001.²¹ In 1986, the Big 3 produced 7.2 million cars in the United States, but just 3 million light trucks. In 1994, the mix was nearly equal, but in 2002 the Big 3's light truck volume was nearly twice as large as their car production, reaching 6 million units. Some industry analysts believe that total Big 3 production will decline modestly throughout 2003-04, as they slow line speeds, eliminate shifts, and close plants in order to balance their output with both a slowing market and their likely reduced shares of it.

U.S. production by the 7 Japanese affiliated producers was spread among 10 plants in 8 states in 2002. Production in these plants reached a record high of 2.6 million units, slightly exceeding the previous peak of 2.56 million units in 2000. Since 1986 – when their output totaled 617,000 units – production has increased by an average of 124,000 units per year, accounting for most of the growth in total U.S. production. As a result, the Japanese share of domestic production has grown significantly, rising from 6% of the total in 1986 to nearly 22% last year.

The Japanese affiliated plants in the United States, plus three in Canada and two in Mexico, supplied 12% of all Japanese brand vehicles sold in the United States in 1986. By 1996 these plants accounted for 67% of their sales. That share has since declined, falling to 63% in 2002. The slippage can be traced primarily to the imbalance in local Japanese capacity, which has been heavily skewed in favor of cars – 75% of their total NAFTA capability in 2001, according to estimates made by Harbour and Associates.²² At the same time, U.S. market growth has been confined almost exclusively to the light truck segments, especially SUVs and CUVs. The major Japanese producers now are building or expanding truck plants within the region, primarily in the United States. Ward's Automotive Reports estimates that Japanese operating capacity in the U.S. was approximately 3.4 million vehicles in 2002 and will reach 4.3 million units by 2004. Recent Japanese expansion projects include a \$1.5 billion Nissan Motors plant in Canton, MS. When fully operational, annual capacity will be 400,000 full-size pickup trucks, minivans, SUVs and mid-size sedans. Initial production is scheduled to commence this May. Nissan also has committed \$1 billion over the next 4 years to expand two plants in Tennessee. The Smyrna vehicle plant will gain 90,000 units of capacity to reach a total of 500,000 cars and light trucks annually by mid-2004. It will be Nissan's highest-volume plant worldwide, and will take over

²⁰ See the Bureau's web page at: <http://www.census.gov/econ/www/ma0300.html>.

²¹ Even so, the average change in Big 3 production since 1986 has been a decline of 60,000 units per year.

²² See: <http://www.harbourinc.com/>.

supply of all Maxima models previously imported from Japan. The Decherd engine plant will gear up to produce all of Nissan's U.S. requirements.²³

Honda opened a new plant in Lincoln, AL, in November, 2001, with the capacity to build 120,000 minivans per year. Plant cost was \$580 million. In 2002, Honda added 30,000 units of capacity and committed an additional \$425 million plans to extend the plant's annual capability to 300,000 vehicles and a like number of V6 engines by 2004. Honda also is spending \$20 million to improve its Anna, Ohio, engine factory, and will use it to supply up to 90,000 engines per year to General Motors, starting later this year.

Toyota began assembling pickups and minivans in its new \$1.6 billion Princeton, IN, plant in 2001. Capacity was doubled to 300,000 units last year. The firm has begun construction on another North American plant, its sixth, to be located near San Antonio, TX. Cost is a reported \$800 million with an initial capacity of 150,000 large pickup trucks beginning in 2006.²⁴ In March of this year, Toyota announced it is investing \$124 million to build an engine block casting plant in Tennessee with an initial capacity of 200,000 units and plans to expand to 1 million units within 6 years.

Mitsubishi announced this March that it has committed \$200 million to raise the capacity of its Normal, IL, car plant by 25% to a total of 300,000 units by the fall of 2004. When completed, it will be the only factory in the United States capable of building 6 different models in the same assembly plant. The firm also said that an additional North American plant is being contemplated. On the other hand, this past January Isuzu sold its 49% of the Subaru Isuzu Automotive (SIA) joint venture in Indiana to its partner. It will source all of its SUV needs from the renamed Subaru of Indiana Automotive (SIA) plant, and all of its small pickups from General Motors. Total capacity in the Subaru plant is not expected to contract.²⁵

Between 1986 and 1988, VW assembled a total of 188,000 units in its Pennsylvania plant before shutting the doors and transferring production to Mexico. VW's U.S. presence has been replaced by two other German manufacturers, BMW and Mercedes. Production in their U.S. plants has been growing rapidly, increasing by an average of 25,000 units a year since 1997. In 2002, they assembled 209,000 light vehicles in the United States. BMW began assembling small sport sedans in Greenville, SC, in late 1994, investing \$300 million for a capacity of 60,000 units. It doubled that investment in 2000, increased capacity to 110,000 units, and switched production to

²³ Renault, SA owns 44% of Nissan and provides its senior executive management in Japan. Renault also owns 100% of the U.S. heavy truck maker, Mack, and 100% of Korean car maker, Samsung. Nissan has a non-voting 15% position in Renault. The French government owns 44% of Renault.

²⁴ Toyota's fifth plant will open in 2005. It's the firms' first Mexican vehicle plant, under construction near their Tijuana pickup bed factory. Reported cost is \$140 million. Annual capacity is 20,000 small pickups; all destined to remain south of the U.S. border. Toyota also has one plant in Canada, and a 50-50 venture in California with General Motors.

²⁵ Last year, GM reduced its 49% share of Isuzu to 12%, but still controls its operations. GM also maintains a 10% share of Subaru's parent, Fuji Heavy Industries.

SUVs and sports cars, becoming the firm's sole global source for these vehicles. In 2002, BMW committed an additional \$400 million, bringing capacity up to 150,000 units per year. Mercedes-Benz (now DaimlerChrysler) began assembling SUVs in Alabama in 1997, investing \$300 million to build a plant near Tuscaloosa with an annual capacity of 60,000 vehicles. In 2000, the firm invested \$600 million more, bringing the plant's capacity to 160,000 units. Production of a newly designed sportwagon is scheduled to be added to the line in 2004.

The latest manufacturer to undertake U.S. production is the Korean producer, Hyundai. The firm began construction of a \$1 billion assembly plant near Montgomery, AL, in April of 2002, with a target date for completion of 2005. When fully operational, the plant will have an annual capacity of 300,000 sedans and SUVs.²⁶ A few months after Hyundai's April announcement, senior representatives of its Kia subsidiary indicated that when sales in North America reach 300,000 units annually, it will consider building a North American plant. Kia sold 256,000 vehicles in the United States and Canada in 2002, compared with 242,000 in 2001.

PLANT CAPACITY INCREASES AND UTILIZATION IMPROVES

Industry data show that U.S. light vehicle manufacturing capacity – the number of units that can be built annually – has grown steadily during the past several years, rising from 12.6 million units in 1993 to 13.3 million units in 2001, due primarily to expansion by the Japanese affiliates. The Federal Reserve Board (FRB) reports its capacity index for car and light truck production rose from 114.7 in January, 1997, to 138.7 in December, 2001, and reached 150.7 in January, 2003.²⁷ The Census Bureau's Annual Survey of Manufacturers confirms this trend. (Table 8) From 1997 through 2001, car and light truck manufacturers reported investing \$23.6 billion in the United States for new industrial machinery, equipment, and the structures to house them. Some of this investment was used to replace obsolete facilities, but most was used to create additional and more efficient capacity.

Industry data show that average straight time vehicle assembly plant capacity utilization rates²⁸ in the United States have routinely exceeded 80% – the level that many industry observers believe to be optimal. Data in the annual Harbour Reports shows that as light vehicle production was peaking in 1999, the average car plant utilization rate exceeded 87% and light truck plants approached a rate of 105%. In 2000, the industry's rate was 90% in the car plants and 99% for light truck plants. Harbour reports that utilization rates continued to decline in 2001 – cars dropped to 80%; trucks to 87%. These mathematical averages hide large differences among

²⁶ In its first foray into North America, Hyundai operated a Canadian assembly plant from 1989 until late 1993. Annual capacity was 100,000 units. Volume peaked at 28,000 units in 1991 before falling to 14,600 units in their final nine months of operation.

²⁷ See the FRB's Series G-17 Report, Industrial Production and Capacity Utilization, on the web at: <http://www.federalreserve.gov/releases/G17/ipdisk/cap.sa>. The FRB Board defines capacity as 'sustainable potential output,' expressed as a percentage of actual output in 1997. It has seldom declined in the period under review. For details see: http://www.federalreserve.gov/releases/G17/cap_notes.htm.

²⁸ A ratio expressing the volume of vehicles actually produced in a year, relative to a plant's designed capability and staffing levels actually available to assemble them.

individual plants. Some facilities are grossly underutilized, while others run at herculean rates that are neither sustainable, nor conducive to maintaining product quality or employee morale. Harbour reports significant variances among productivity levels in the American, Japanese, and German manufacturers' car and light truck plants in the United States.²⁹ (Chart 7)

The FRB also measures plant capacity utilization, reporting that during 1999's all-time peak output, its car and light truck utilization index peaked at 93.7 in August.³⁰ As production began to decline in 2000, the utilization index slipped to a low of 75.6 in December. It climbed to 84.8 in July of 2001, and then reached 86.7 in August of 2002, before falling to 79.1 in December.

MORE CAPACITY + MORE PRODUCTIVITY = LESS EMPLOYMENT

Direct employment in the domestic motor vehicle assembly industry (SIC 3711) continues to decline, slipping from its most recent highwater mark of 357,400 persons in 1995 to 331,100 employees in 2002. (Table 9) Bureau of Labor Statistics data show that the industry employed 400,000 in 1986.³¹ The American Big 3 have been selling their parts operations, accounting for some of the decline.³² In addition, the American vehicle assemblers are cutting their remaining employment rosters to reflect their declining share of the domestic market. Between 2001 and the end of this year, staffing reductions could exceed 70,000 individuals worldwide, with most cuts occurring in North America. Even though they are building new plants and expanding some of their existing NAFTA plants, Big 3 employment will shrink as these facilities become more efficient. The U.S. plants of the Japanese and German manufacturers are continuing to add to their U.S. employment rosters, but their additions may not be sufficient to offset the Big 3's reductions.

Accompanying the decline in the industry's employment has been the steady improvement in efficiency on their production lines, but not in the 'back office' of management, marketing, and engineering. Productivity gains – measured as the number of vehicles assembled per production worker– have increased sharply, rising from an average of 43.9 in 1997 to 53.1 in 2002, a gain of 21%. (Chart 8) When measured only against salaried worker employment, however, the trend is

²⁹ Two points to bear in mind: The capacity estimate is a product of each factory's engineered hourly line rate in December of each year multiplied by 16 hours (two 8-hour shifts) multiplied by 235 (assumed annual days of operation). There is no prorating to account for actual days of operation. Consequently, plants that open late in a calendar year will appear to be underutilized. Secondly, plants are built with a specific initial line rate (units per hour that physically can be accommodated), which performance can result in apparent underutilization during the first year of operation. In 2001 these factors conspired to imply that only the German plants managed to generate improvements in their utilization rates. In fact, individual Japanese and American plants also recorded significant increases.

³⁰ See: <http://www.federalreserve.gov/releases/G17/ipdisk/utl.sa> .

³¹ See: <http://www.bls.gov/data/home.htm> .

³² Table 9 points out that employment in the parts industry also is declining. The four SIC codes represented there have slipped from a recent average annual high of 768,200 employees in 2000 to 667,400 in 2002. Collectively, auto industry employment has dropped by 7% since 1995. See also the annual Labor Department report on job prospects in the industry at: <http://www.bls.gov/oco/cg/pdf/cgs012.pdf> . The agency anticipates that employment in SIC 371 eventually will have grown by 9% between 2000 and 2010.

in the opposite direction – dropping from 147.6 units to 113.9 units, a 23% reduction. The net effect has been to limit the overall, corporate productivity gain to an increase of just 7% spread over 6 years, growing from 33.8 units per employee to 36.2 units. Put more directly, while production employment has declined by 16% from 268,100 workers in 1997 to 225,800 in 2002, salaried employment has increased by 32%, growing from 79,700 in 1997 to 105,300 in 2002. Had it been possible to reduce salaried employment at the same rate as for production workers, the net result would have been an increase in corporate productivity to 40.9 units for each individual on the payroll. The industry now appears to be moving in that direction. BLS data indicate that salaried employment in 2002 was reduced by 2.7%. In 2001, salaried employment had reached a 16-year peak level of 108,200 workers.

The Census Bureau's 2001 Annual Survey of Manufacturers confirms that the auto industry, despite its recent drop in employment, continues to pay well. (Table 10) Wages alone were worth \$11.4 billion in 2001, while fringe benefits added an additional \$4.9 billion to the total earned by all employees in the car and light truck assembly industry. BLS data also indicate that motor vehicle production workers (SIC 3711) remain among the highest paid in the U.S. economy. Their average hourly rate was \$25.31 in 2002 (\$24.03 in 2001, unadjusted), 65% above the national average for production workers in all of the nation's manufacturing industries.

TRADE MATTERS

From the very beginning of the automobile industry, the vastness of the American market and the profits that can be generated from it have provided little incentive for domestic manufacturers to focus upon exporting in any significant way. Moreover, the vehicles they have become accustomed to designing to compliment the wide open spaces and low energy expenses of the American market, hold only limited appeal for buyers in most other countries. On the other hand, the vastness of the American market and the profits that can be generated from it, provide a great deal of incentive for foreign manufacturers to enter the American market.

The result should not surprise – the United States suffers the world's largest imbalance in light vehicle trade. It is the natural result of the world's most profitable market serving as a magnet for shippers in more than 50 countries (so far) who face no non-tariff barriers in the United States, and duty rates that have only limited impact upon pricing in the American market, magnified by foreign government practices that have encouraged and entrenched local manufacturing operations, while discouraging large volumes of vehicle imports. Consequently, and despite ongoing U.S. government efforts to break down trade barriers around the world, it is unlikely that the United States will generate a surplus in its light motor vehicle trade in either the near or the medium term.

The U.S. light motor vehicle trade deficit has climbed relentlessly since 1989, reaching an all time high of \$103.4 billion in 2002. (Chart 9) Between 1989 and 2001, U.S. imports rose and fell in close harmony with the domestic market's pace of expansion and contraction. That relationship was broken last year, however, when imports advanced even though the market fell. (Chart 10) The 2002 deficit was twice as large as the 1986 deficit, when 'true imports' (i.e., all

vehicles from abroad, including those received from Canada and Mexico) reached their all-time peak share of the light vehicle market of 44%. (Chart 11) In 2002, true imports were the equivalent of 42% of the market.³³ Trade with our NAFTA partners, Canada and Mexico, accounted for 40% of the 2002 deficit. Trade with just three more countries – Japan, Korea, and Germany – represented all but 6% of the remainder. (Chart 12) The deficit with Japan continued to dominate, growing 13% in 2002 to \$34.5 billion – the equivalent of one-third of the total deficit in light vehicle trade.

OAA's trend analysis suggests that light vehicle import unit values and volume will grow smartly during 2003, producing a total for the year of \$139 billion. Exports probably will show little volume growth, but their individual values should increase, generating a total of almost \$25 billion. The result could be an 10% increase in the deficit to \$114 billion – another record.

EXPORTS COUNT...

The USA is the world's fourth largest exporter, mostly because of shipments across the borders to Canada and Mexico. Shipments of new passenger vehicles and of light trucks from the United States grew by 56% between 1989 and 2002, reaching a volume of 1.5 million units. (Chart 13) As a share of light vehicle production, exports increased from 9% in 1989 to their highest level of 12.6% in 2002. However, if shipments to Canada and Mexico are excluded, the gains are more modest – growth in shipments to the rest of the world was 29% between 1989 and 2002, reaching 323,000 units. This equals 2.7% of production – their fourth lowest share during the period under review.³⁴

U.S. exports reached 171 countries in 2002, producing a total of \$24.2 billion – a healthy 15% gain for the year, and more than twice the volume of shipments in 1989. Volume in 2002 exceeded the previous peak of 64,000 units set in 1997, and their value by more than \$3 billion. The 2002 top five markets – Canada, Mexico, Germany, Saudi Arabia and the UK – absorbed 89% of all U.S. outbound shipments, repeating a long standing pattern. (Table 11) Of this group, shipments to Germany gained the most, jumping 59% to \$2.8 billion. Shipments to the U.K. surged 80% in 2001, and by 22% in 2002 to \$593 million. That dropped Japan out of its long standing top 5 ranking to 6th place. Shipments to Japan totaled just \$406.5 million in 2002, down 22%. Saudi Arabia had pushed Japan down to fourth in 2001 by absorbing U.S. exports worth \$771 million, \$250 million more than Japan purchased that year.

³³ True imports as a share of the total market is only an approximation of import penetration, necessitated by manufacturers not identifying in their sales data the actual source of their NAFTA produced 'domestic' vehicles. (Some models are produced in two countries.) Vehicles reported in official trade data may have been imported in one year, but sold in another. Some may not be sold on the new retail market. Also see footnote #3 and #10.

³⁴ In comparison, the U.S. imported 4.9 million passenger vehicles and light trucks from the world in 1989, equal to 46% of U.S. domestic production. In 2002, imports totaled 7.1 million, the equivalent of 59% of production. Excluding Canadian and Mexican imports from the equation (1.7 million in 1989 and 3.4 million in 2002), yields a 30% import/production ratio in 1989, and 31% in 2002; i.e., one import for every 3.3 units of local production in 1989, and one import for 3.2 units of production in 2002.

Canada continues to occupy the top spot for U.S. exports, as it has for more than a decade. Shipments north of the border rose 20% in 2002 to \$13.7 billion. South of the border, Mexico retained its number two ranking in 2002, even though shipments were unchanged at \$3.6 billion. Mexico was not among the top five destinations in 1993, the year before the North American Free Trade Agreement was enacted, nor even among the top 15.³⁵ In 1997, Mexico displaced Japan as our second best market, taking 9% of all U.S. shipments that year, compared with 7% for Japan.

...BUT IMPORTS COUNT MORE

Passenger vehicle and light truck imports reached \$127.4 billion in 2002, climbing 6% over 2001, and reaching a total that was 5% higher than the previous record set in 2000. (Table 12) The United States imports more vehicles by volume and value than any other nation, primarily because of shipments from plants in Canada and Mexico. Along with Germany, Japan, and Korea, these five countries account for over 90% of all U.S. light vehicle imports. The first four have been our primary suppliers for well over a decade. Korea has moved in and out of the top five group, first breaking into the ranks in 1989, with the help of ‘captive imports’ from GM and Ford. Korea regained 5th place in 1999, this time without GM and Ford, and has held that position ever since. Korea could rise in the rankings in the next few years, as both GM and Suzuki will begin this year to source vehicles from their new joint venture there, while Hyundai and its Kia subsidiary continue to develop a strong presence here.

Germany was the primary source of U.S. light vehicle imports in 1965, while Canada was distant third behind the UK. Canada rose to the top in 1970 on the strength of Big 3 plants in that country. In 1976, Japan – aided by the first ‘oil shock’ in 1974 – had moved well ahead of everyone else. It didn’t relinquish first place until 1993 when Canada again became, and remains, our primary import supplier. Big 3 plants have been joined by Toyota and Honda, and by a joint venture between GM and Suzuki. Mexico bumped Germany out of third place in 1995, a relationship that still holds today.

Imports from Canada increased 1.4% in 2002 to \$38.5 billion, while shipments from Japan jumped 12.6% to \$34.9 billion. Imports from Germany advanced by 18.7% to \$17.7 billion. Of the five leading suppliers, only Mexico slipped in 2002. Value fell 4.4% to \$19.7 billion. Volume declined 3.4% to 1.1 million vehicles. Unit imports from Korea also declined, falling 1% to 628,000 units, but their value increased 7.2% to \$6.8 billion.

The greatest gain among the major suppliers in 2002 was posted by the UK, which increased exports to the United States by nearly 50% to \$4 billion. Ford has been successfully marketing its captive British imports, while Honda has increased shipments here from its British plant, and BMW has reintroduced the Mini Cooper to U.S. enthusiasts. South Africa increased shipments to the United States from nothing in 1987 to \$23.3 million in 2000. It posted an 11-fold

³⁵ See also the NAFTA discussion in this report.

increase in 2001, and then added 4% more to its U.S.-bound exports in 2002, reaching a total of \$267 million. This accomplishment is primarily the result of a decision by BMW to reassign production of its small sedan from its South Carolina factory to its South African facility to make room for U.S. built SUVs. In addition to greatly increased imports from the UK and South Africa, (and from Korea, as noted earlier), Brazil also is on its way to becoming another major supplier, with new models coming from VW and Ford plants in that country. Imports from Brazil dipped one-half of a percent in 2002, but had jumped 373% in 2001 to a level of \$624 million. Australia (GM), and Hungary (Audi) also will figure more prominently in the immediate future. Imports from Australia totaled \$311 million in 2002, while Hungary supplied a total of \$238 million.

NAFTA AFTER ALL

In 1994, the United States, Canada, and Mexico entered into an historic undertaking to liberalize trade among the three nations. In the years following implementation of the North American Free Trade Agreement (NAFTA), shipments of new passenger vehicles and light trucks between the United States and its two partners have grown tremendously. U.S. exports and imports involving both countries reached a peak of \$77.7 billion in 2000 before declining to \$73.5 billion in 2001. In 2002, cross-border trade was \$75.5 billion. In the year before NAFTA, two-way shipments were \$36.5 billion. Most of the growth in trade during this period was the result of increased imports by the United States, which rose from \$28.4 billion in 1993 to 2000's peak of \$61.7 billion. U.S. imports in 2002 from both countries totaled \$58.1 billion, more than twice the size of 1993's sum. U.S. exports also have more than doubled, growing from \$8 billion in 1993 to \$17.3 billion last year. The United States continues to experience deficits with both countries. However, their combined share of the U.S. global deficit in these products has declined steadily, dropping from a high of 54% in 1996 to 40% in 2002. (Chart 14)

Most trade in automotive products between Canada and the United States was liberalized by two bilateral agreements enacted well before the NAFTA agreement was implemented.³⁶ Therefore, little of the growth in trade between the two countries can be attributed directly to the NAFTA agreement. Bilateral trade with Canada in these products, \$32.8 billion in 1993, reached \$52.2 billion in 2002. U.S. exports have increased by 72% to \$13.7 billion, while imports from Canada grew 55% above 1993's total to \$38.5 billion.

Before NAFTA was enacted, exports to Mexico from the USA were artificially constrained by a host of measures enacted by the Mexican government to force firms to produce in Mexico, if they wished to export there. In 1993, our shipments of new passenger vehicles and light trucks totaled less than \$95 million. They jumped 500 percent in 1994, the first year of the agreement, reaching \$580 million. By the end of 2002, U.S. exports to Mexico totaled \$3.6 billion, 38 times greater than shipments in 1993. Mexico displaced Japan as our second most important international market in 1997, and remains our second most important market today, trailing only

³⁶ The Canada-U.S. Automotive Products Trade Agreement (APTA) in 1965, and the Canada-U.S. Free Trade Agreement (CFTA) in 1989.

Canada. This came about because U.S. firms were able to rationalize and relocate some of their Mexican production to U.S. plants, and because they could export more models to Mexico from the U.S. without being subject to artificial import and local production constraints.

Imports from Mexico have grown rapidly since the agreement was signed, climbing more than 400% from 1993 to a total of \$19.7 billion in 2002. Because the U.S. border was already open to Mexican imports before the trade pact was signed, it would be a mistake to attribute this surge to the NAFTA agreement. In fact, of the two, only the growth in U.S. exports can be directly credited to the agreement, since the only change in cross border market access has been the removal of Mexican restrictions that constrained U.S. shippers. For example, a Mexican requirement that producers assemble vehicles in Mexico and export a certain percentage of them in order to import vehicles into Mexico, was immediately phased out for commercial vehicles and reduced for passenger vehicles. On January 1, 2004, the remaining restrictions will be entirely eliminated. Strict quotas, high tariffs, and minuscule import market share allocations that applied to motor vehicle imports from the United States have been eliminated. Mexican content requirements were substantially curtailed and will be eliminated entirely by January 1, 2004. Import duty rates for U.S. products, which reached as high as 20%, were voluntarily eliminated by Mexico on January 1, 2003, one year ahead of schedule.

The point bears repeating: NAFTA is responsible for a significant surge in U.S. automotive exports to Mexico. Conversely, our imports from Mexico would have risen even in the absence of the agreement, since the U.S. motor vehicle market has experienced an unprecedented period of strong sales that happens to coincide with implementation of the agreement. The strength of the U.S. domestic market, not the agreement, is the primary factor 'responsible' for drawing in imports of motor vehicles not only from Mexico, but from all over the world.

Before the accord was signed, many observers expressed reservations, believing that the lower wage rates in Mexico would result in the immediate and significant relocation of U.S. light vehicle manufacturing capacity to sites south of the border. Instead, data produced by Harbour and Associates indicates that light vehicle assembly capacity has increased in all three countries since 1993, rising from a total of 16.7 million units to 18.4 million vehicles in 2001. (Chart 15) Capacity has grown the fastest in Mexico, rising by 30%, but that increase has been from a relatively smaller base. U.S. capacity in 2001 was 6% greater than in 1993, but the absolute increase of 714,000 additional units was 64% greater than Mexico's 436,000 unit increase.³⁷

Plant capacity is not static, however, and its measure depends upon a combination of factors which can change from year to year, and even from day to day. Variables include the level of investment in physical plant, the efficiency of the processes employed, complexity of the vehicles being assembled, the number of employees on the assembly line, and the number of hours of operation. Measured capacity in all three countries actually declined in the first year of the agreement, dropping the most in Mexico – 1%. (Chart 16) By the end of the second year,

³⁷ Canadian capacity grew 18% on an absolute gain of 481,000 units.

capacity had increased the most in Mexico – 15% – despite the economic crisis that the country was then experiencing.

Plant capacity utilization – dividing estimated production capability by the number of units actually produced in a year – is another useful tool for measuring changes in the industry. Harbour's data shows that in 1993, Mexico produced one million vehicles in plants with a capacity to assemble 1.4 million, yielding a 72% utilization rate. During Mexico's 1995 'peso crash,' light vehicle production in the country's plants dropped 16% to 925,000 units, while capacity had risen that year by nearly 15% to 1.6 million units. The net result was a 27% decline in utilization for the year to a rate of 57%. (Chart 17) By the end of 2000, Mexico's utilization rate had hit 100%, the highest of any of the three countries. The U.S. rate, 84% in 1993, was fractionally lower in 2001, even though a much larger volume of additional capacity had been created in the interim. Between 1993 and 2001, the overall utilization rate averaged 91% in U.S. plants, 87% in plants north of the border.

Most light vehicle production in each of the three countries is accomplished in the plants of the American Big 3. (Chart 18) In 1993 they accounted for 81% of all NAFTA production. Their share has declined in every year since, except for one, falling to 75% in 2002. Big 3 production in Canada and Mexico has been relatively stable – drifting slightly higher in Canada (although their share of total production in Canada has dropped from 84% to 75%), while rising steadily in Mexico (yet holding about the same share, slipping slightly from 62% to 60%). Big 3 production in the USA has shown a much greater degree of fluctuation, rising from 8.8 million in 1993 (an 83% share of local production) to a peak of 10 million units in 1999 (80%), falling to a low of 8.5 million units in 2001 (76%), and then recovering to 9.2 million units in 2002 (77%).

SUMMARY

U.S. sales of new light vehicles in 2002 declined for the second consecutive year, continuing to retreat from 2000's record high of 17.3 million units. Sales fell nearly 2% to a total of just 16.9 million units. Nonetheless, the result was the fourth highest sum on record. Moreover, a new record was set for consumer expenditures for cars and light trucks, which totaled \$241 billion. Many analysts expect that the 2003 sales volume will slip further, in a range of 16 million to 16.4 million units.

The Big 3's combined share of the light vehicle market dropped to 61% in 2002, their lowest ever. They probably will continue to lose ground in 2003, and some analysts suggest it could slip below 50% within five years. U.S. light vehicle production increased 7% in 2002, but may not grow at all in 2003. Anticipated reductions by GM, Ford, and Chrysler could be replaced not just by the increasing volumes of the foreign affiliated producers, but also by imports – which could jump by 10% during the year. Exports also are expected to increase, but not enough to reduce the trade deficit, which could reach \$114 billion – 10% larger than last year's record.

– INDUSTRY TABLES –

Table 1

Total U.S. Motor Vehicle Registrations (Millions)			
	Cars	Trucks	All Vehicles
1996	129.7	75.9	206.4
1997	129.7	77.3	207.8
1998	131.8	79.1	211.6
1999	132.4	83.1	216.3
2000	133.6	87.1	221.5
2001	137.6	92.0	230.4
Source: U.S. Department of Transportation			

Table 2

U.S. Cars and Trucks Registrations per:						
	1996	1997	1998	1999	2000	2001
1,000 Residents	775	774	780	791	784	816
1,000 Driving Age (16yrs & older)	1,009	1,006	1,013	1,024	1,017	1,058
1,000 Licensed Drivers	1,146	1,133	1,140	1,152	1,158	1,201
Derived from U.S. Department of Transportation data by U.S. Department of Commerce/Office of Automotive Affairs						

Table 3

Median Age of U.S. Operating Fleet (Years)						
	1996	1997	1998	1999	2000	2001
All Cars	7.9	8.1	8.3	8.3	8.3	8.1
All Trucks	7.7	7.8	7.6	7.2	6.9	6.8
Source: The Polk Company via Ward's Automotive Yearbook						

Table 4

U.S. Motor Vehicle Sales (Millions)							
	1996	1997	1998	1999	2000	2001	2002
Cars	8.5	8.3	8.1	8.7	8.8	8.4	8.2
Light Trucks	6.5	6.8	7.4	8.2	8.5	8.7	8.7
Total LV	15.1	15.1	15.5	16.9	17.3	17.1	16.9
Med/Heavy Trucks	0.2	0.4	0.4	0.5	0.5	0.4	0.3
Total All	15.2	15.5	16.0	17.4	17.8	17.5	17.2
Source: Ward's Automotive Reports							

Table 5

Consumers' Expenditures (PCE) (Billions of Current Dollars)							
	1996	1997	1998	1999	2000	2001	2002
Cars, New	81.9	82.5	87.9	98.4	105.5	105.9	103.2
Light Trucks, New	68.3	73.1	86.8	97.8	102.6	121.8	137.8
Total, New	150.2	155.6	174.7	196.2	208.1	227.7	241.0
Net, Used Autos	51.4	53.1	54.9	57.7	59.4	60.6	58.6
Total	201.6	208.7	229.6	253.9	267.5	288.3	299.6
Source: U.S. Bureau of Economic Analysis							

Table 6

U.S. Motor Vehicle Production (Millions)							
	1996	1997	1998	1999	2000	2001	2002
Cars	6.1	5.9	5.6	5.6	5.5	4.8	5.0
Light Trucks	5.4	5.8	6.0	7.0	6.8	6.3	7.0
Total LV	11.5	11.8	11.6	12.6	12.4	11.2	12.0
Med/Heavy Trucks	0.301	0.337	0.374	0.432	0.391	0.256	0.258
Total All	11.8	12.1	12.0	13.0	12.8	11.4	12.3
Source: Ward's Automotive Reports							

Table 7

Value of Manufacturers' Product Shipments (Billions of Dollars)					
	1997	1998	1999	2000	2001
Cars	93.2	92.0	98.6	95.6	84.6
Light Trucks	107.2	113.4	141.7	121.6	116.5
Total LV	200.4	205.4	240.4	217.2	201.1
Med/Heavy Trucks	16.9	21.5	24.1	20.1	13.0
Total All	217.2	226.8	264.5	237.3	214.1
Source: U.S. Census Bureau 2001 Annual Survey of Manufacturers					

Table 8

Capital Expenditures for Plant and Equipment (Billions of Dollars)					
	1997	1998	1999	2000	2001
Car Plants	3.5	3.2	1.8	2.0	2.3
Light Truck Plants	1.8	2.1	2.8	2.5	1.7
Total LV Plants	5.3	5.3	4.5	4.5	4.0
Med/Heavy Truck Plants	0.1	0.1	0.2	0.3	0.5
Total All Plants	5.4	5.4	4.8	4.8	4.5
Source: U.S. Census Bureau 2001 Annual Survey of Manufacturers					

Table 9

U.S. Automotive Industry Average Annual Employment (1,000s)						
(SIC Based)	1997	1998	1999	2000	2001	2002p
Motor Vehicles & Car Bodies	347.8	345.0	352.9	352.8	341.3	331.1
Truck & Bus Bodies	40.8	43.3	47.7	49.1	45.3	45.2
All Motor Vehicles	388.6	388.3	400.6	401.9	386.6	376.3
All Parts & Accessories	746.8	753.4	767.7	768.2	705.9	667.4
Total	1,135.4	1,141.7	1,168.3	1,170.1	1,092.5	1,043.7
Source: U.S. Department of Labor/Bureau of Labor Statistics						

Table 10

Total Employee Wages and Benefits (Billions of Dollars)					
	1997	1998	1999	2000	2001
Car Plants	9.0	8.1	7.7	8.0	7.6
Light Truck Plants	7.6	7.1	9.1	9.4	8.7
Total LV Plants	16.6	15.2	16.8	17.5	16.3
Med/Heavy Truck Plants	1.7	1.9	2.3	2.2	1.7
Total All Plants	18.2	17.1	19.1	19.7	18.0
Source: U.S. Census Bureau 2001 Annual Survey of Manufacturers					

Table 11

U.S. Exports of Passenger Vehicles & Light Trucks – Top 5 Markets Billions of Dollars, FAS							
	1996	1997	1998	1999	2000	2001	2002
World	19.733	20.982	19.986	19.665	20.883	20.995	24.203
Canada	10.477	12.226	11.537	12.321	12.600	11.416	13.708
Mexico	1.179	1.878	2.127	2.315	3.357	3.599	3.606
Germany	1.092	1.052	1.211	1.083	1.113	1.739	2.760
S. Arabia	0.726	0.484	0.584	0.403	0.569	0.771	0.792
UK	0.254	0.280	0.481	0.476	0.272	0.488	0.593
Source: U.S. Census Bureau, using OAA HTS Selections							

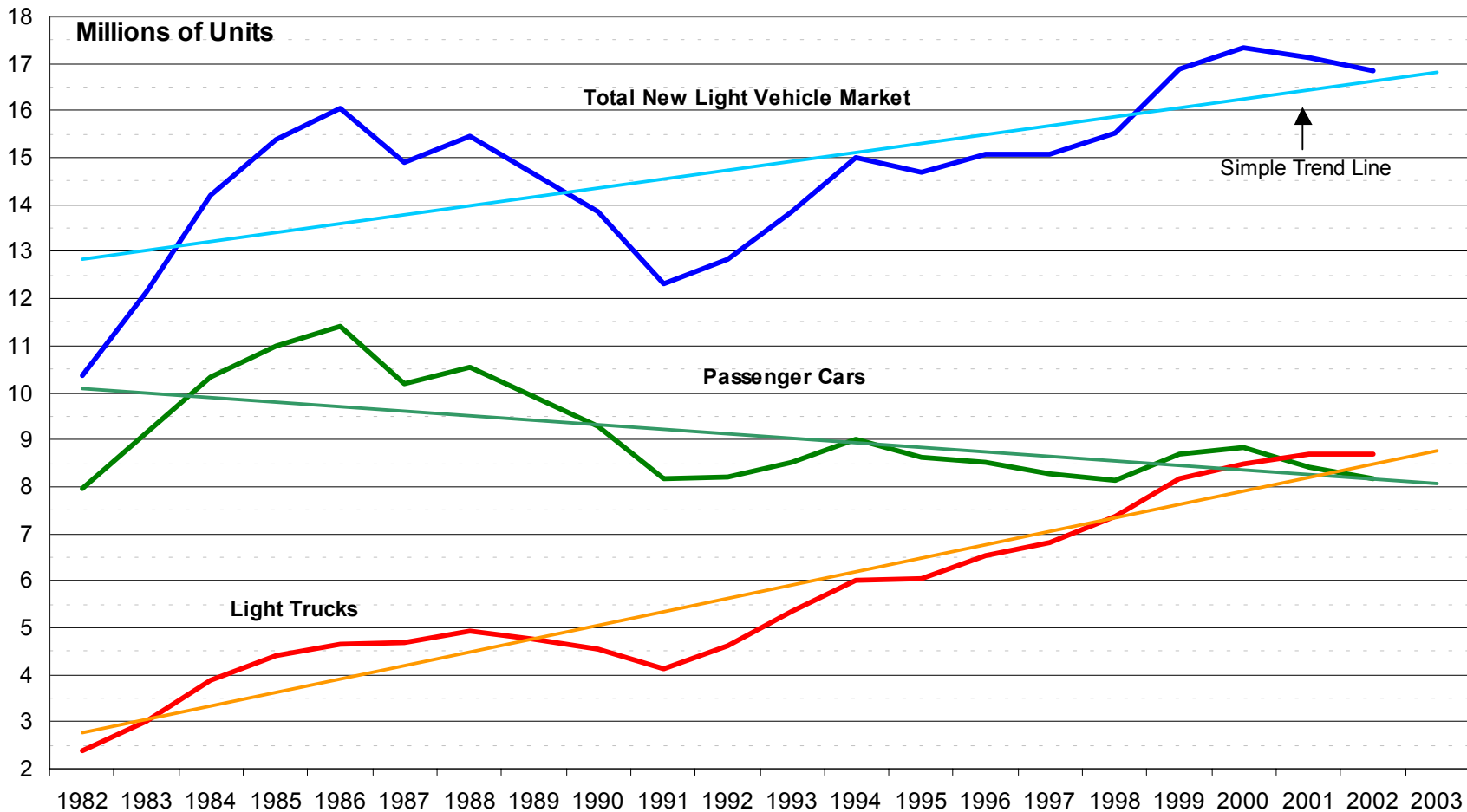
Table 12

U.S. Imports of Passenger Vehicles & Light Trucks – Top 5 Sources Billions of Dollars, Customs Value							
	1996	1997	1998	1999	2000	2001	2002
World	72.061	78.811	83.905	101.033	113.153	110.793	117.562
Canada	31.294	33.065	34.068	41.828	41.647	37.946	38.467
Japan	20.622	23.257	24.696	29.145	32.049	31.040	34.938
Mexico	10.895	11.577	12.399	13.779	20.087	20.571	19.674
Germany	7.399	9.008	11.046	13.403	14.532	14.893	17.684
Korea	1.851	1.904	1.696	2.879	4.838	6.342	6.799
Source: U.S. Census Bureau, using OAA HTS Selections							

– INDUSTRY CHARTS –

In 2002, U.S. sales of light trucks were 264% above 1982, but passenger car sales were just 3% greater and trending lower. Over all, the market was 63% larger than it was 20 years ago.

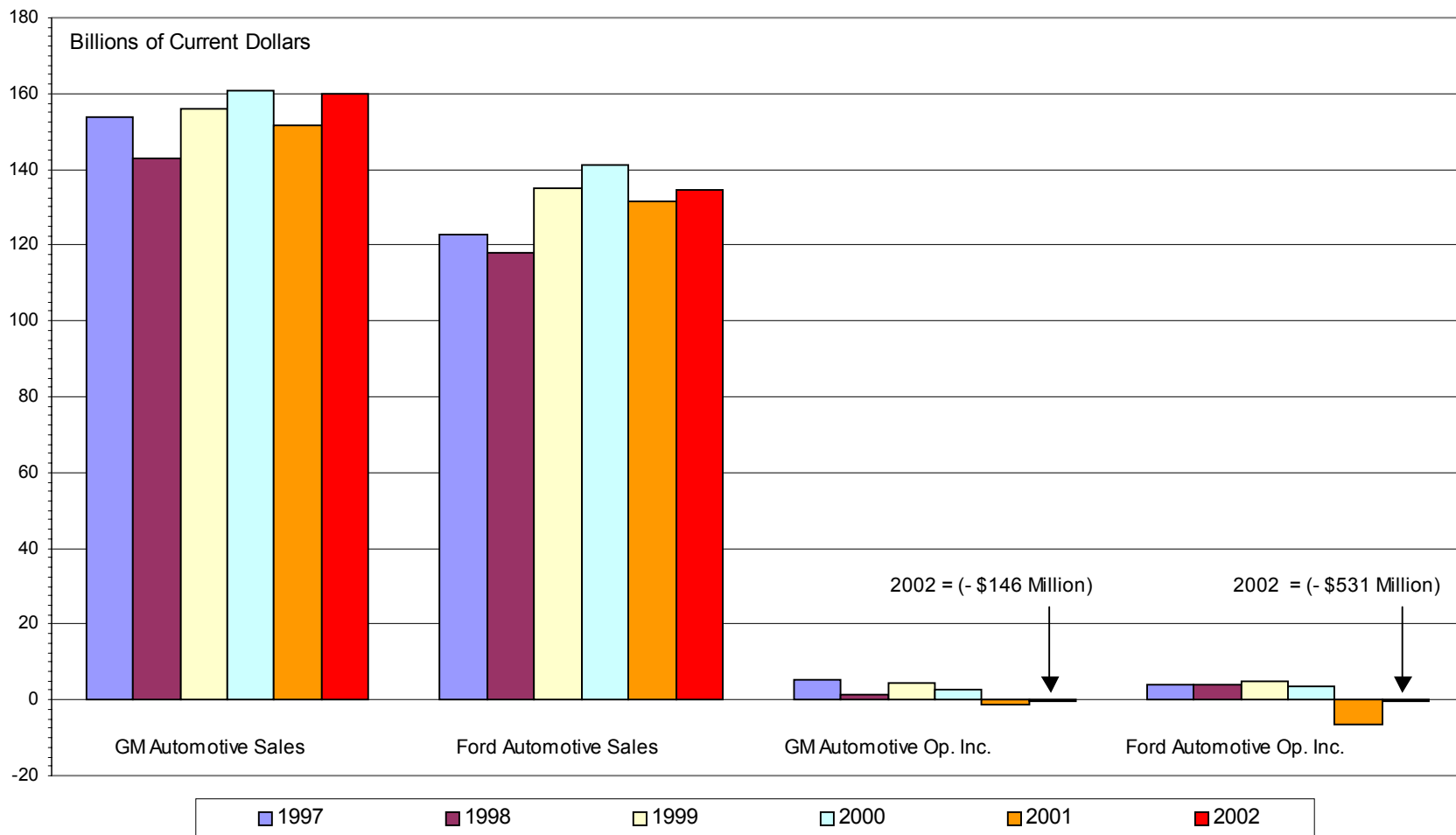
Chart 1



Source: Derived from the Automotive News 100-Year Almanac, 1996 ; and Ward's AutoInfoBank by USDOC/Office of Automotive Affairs

GM's and Ford's recovery plans are rebuilding sales revenue, but cost reductions have been insufficient to generate positive automotive operating income.

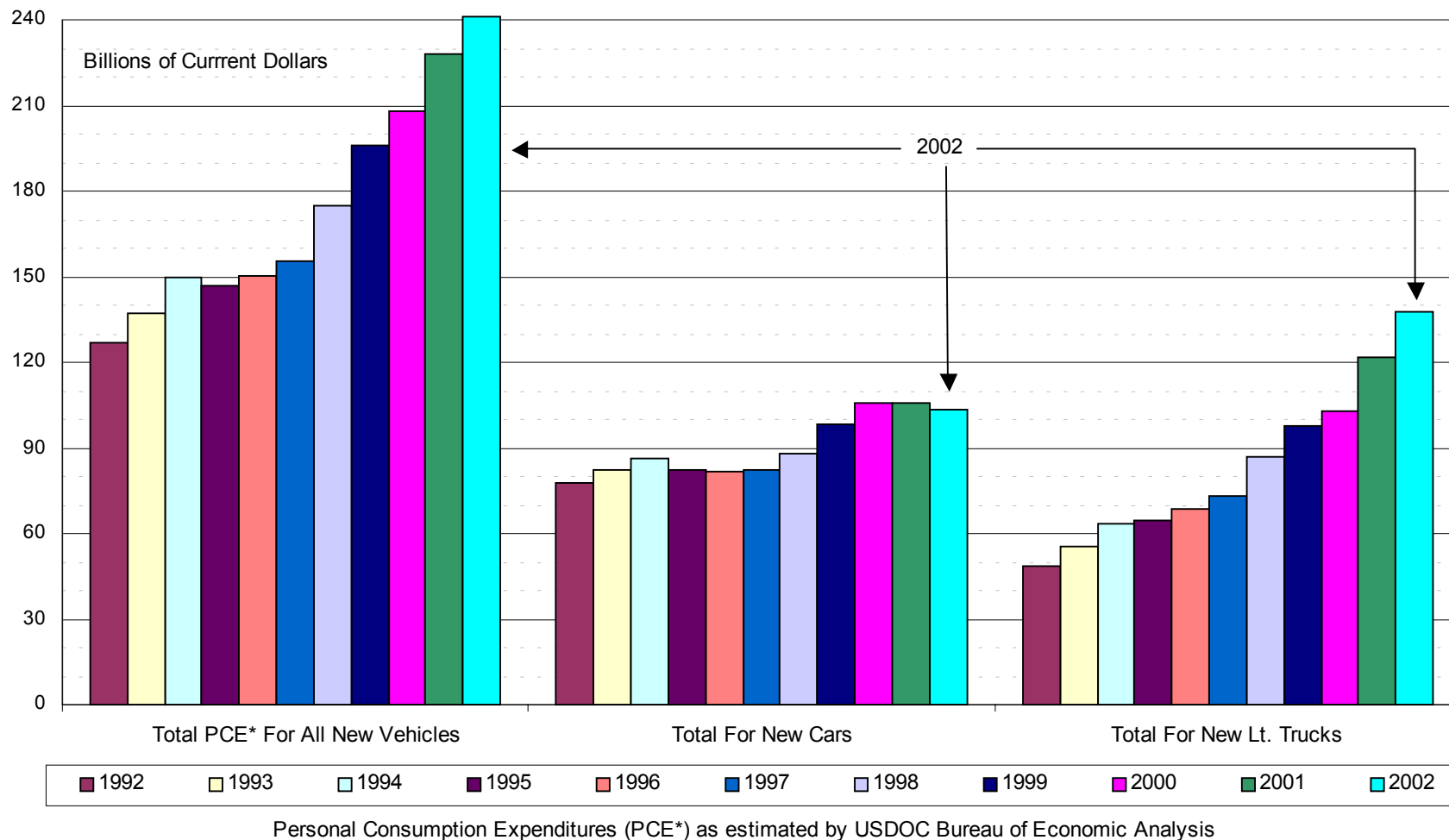
Chart 2



Source: Corporate Annual and Quarterly Reports

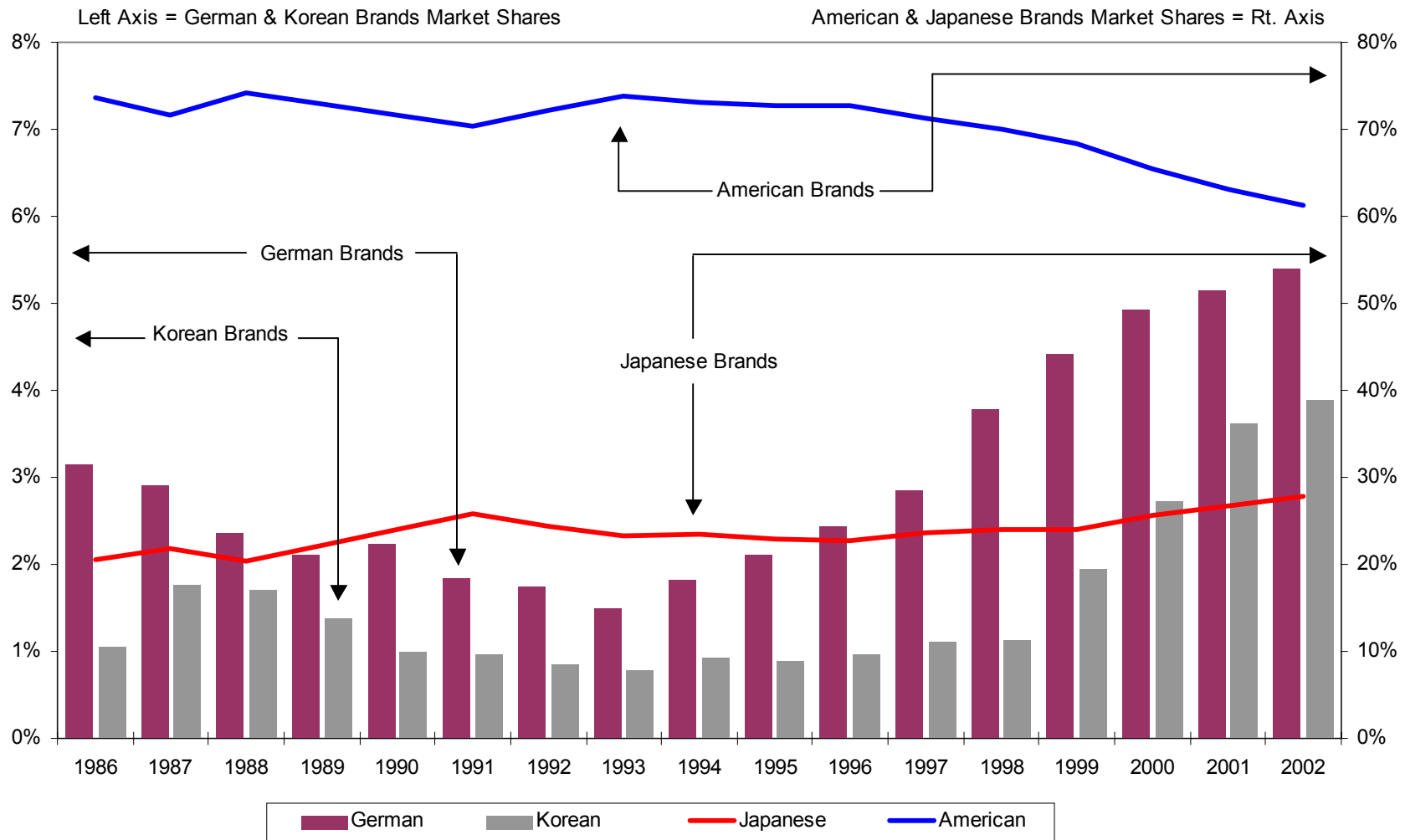
Total consumer expenditures for new light trucks have accelerated rapidly, surpassing the new car total in 2001. Moreover, the average expenditure for each new light truck is higher than for cars. In 2002, the additional premium averaged \$3,186 per vehicle.

Chart 3



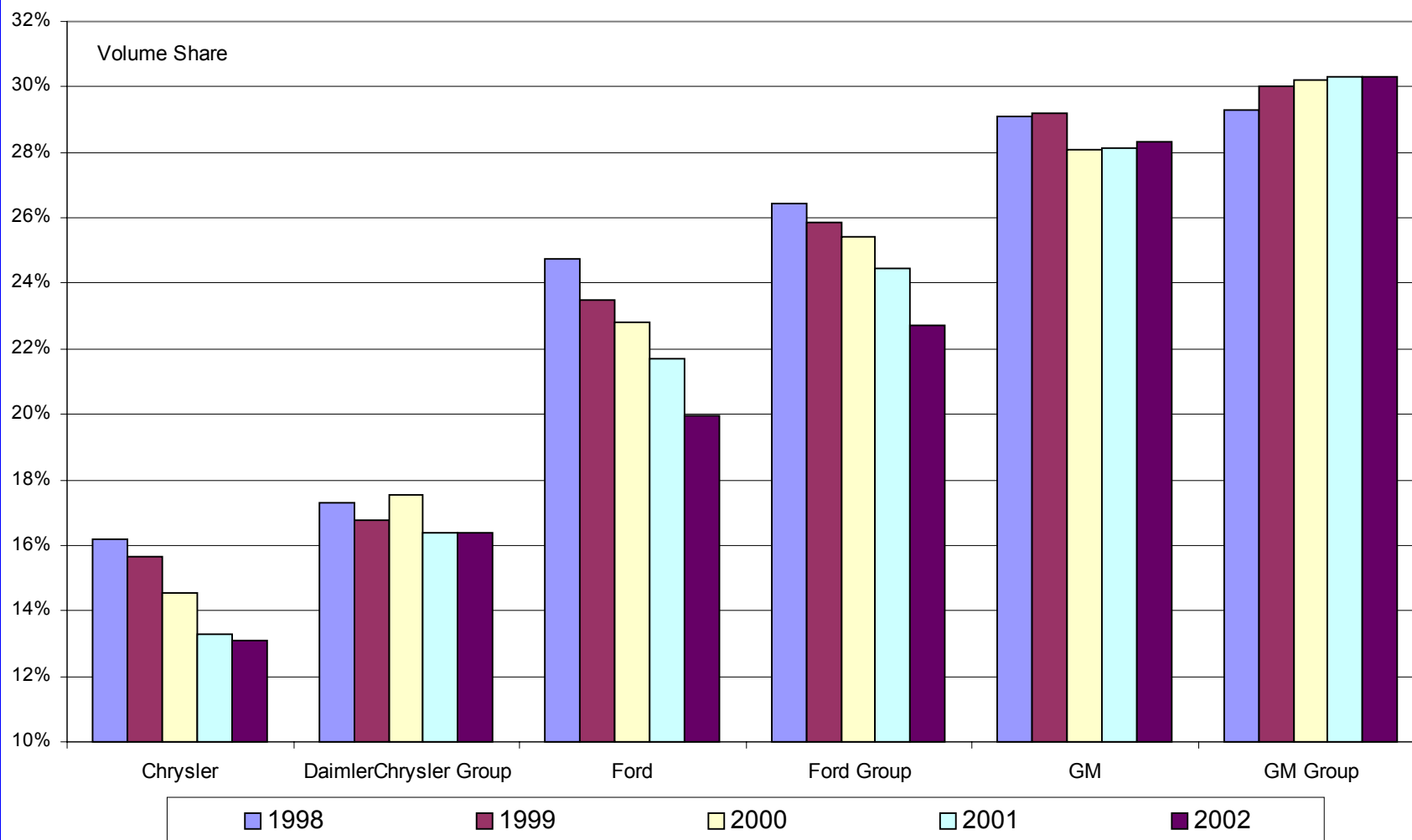
The American brands' share of the domestic market continues to slip, while Korean and German brands are gaining share rapidly.

Chart 4



Source: Ward's AutoInfoBank, Adjusted by USDOC Office of Automotive Affairs

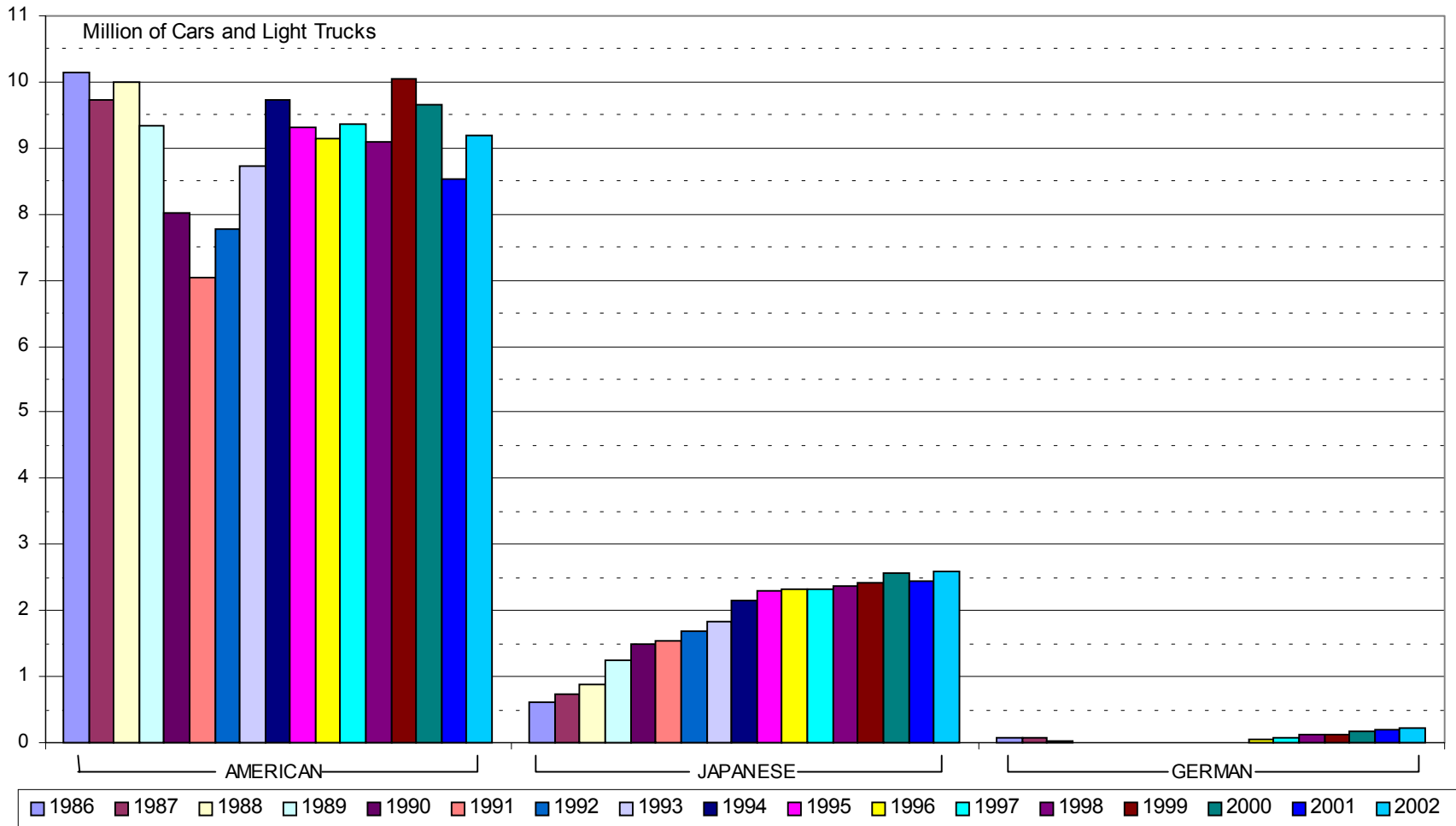
Corporate alliances have helped to prop up effective U.S. market shares



Source: Derived from Ward's AutoInfoBank by USDOC/Office of Automotive Affairs

U.S. production by the affiliates of Japanese manufacturers has grown by an average of 124,000 units per year since 1986. They account for virtually all U.S. growth in this period.

Chart 6

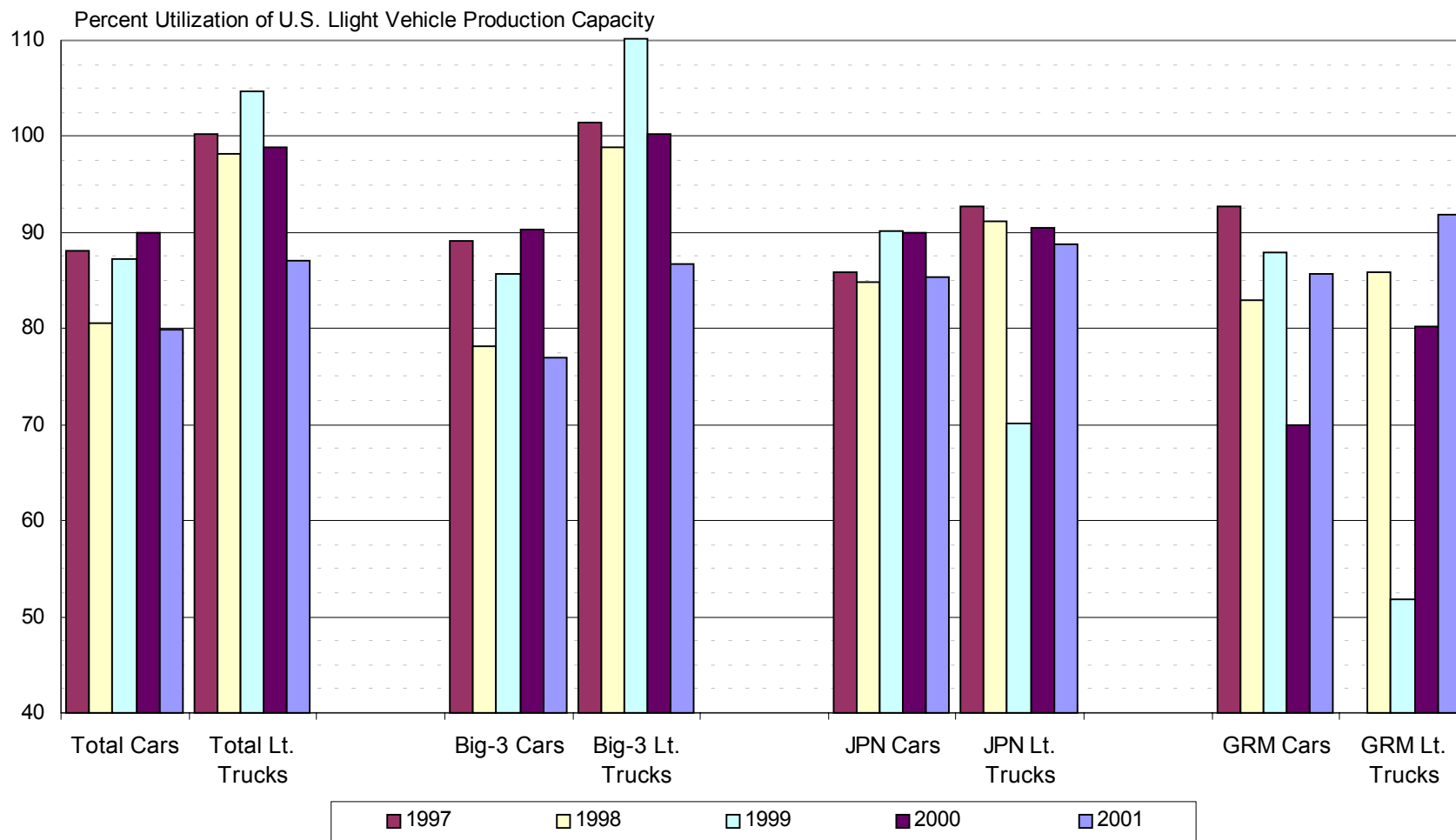


American = GM, Ford, and Chrysler plants of DaimlerChrysler

Source: Ward's AutoInfoBank, adjusted by USDOC Office of Automotive Affairs

Overtime and extra shifts enable plant capacity utilization to exceed "straight time" annual rates. In 2001, only the German affiliates improved their utilization rates.

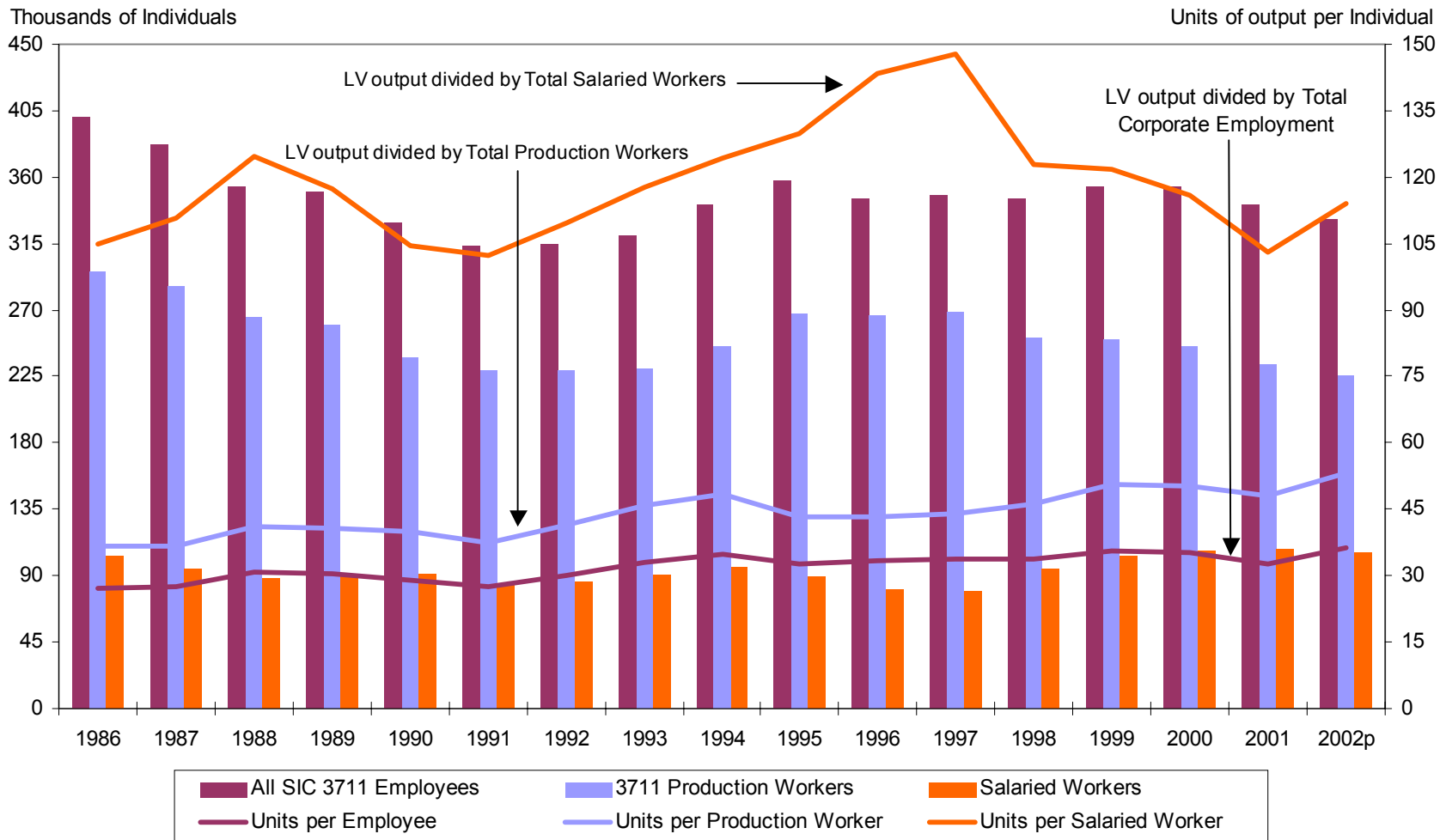
Chart 7



Source: Derived from The Harbour Report Annuals, 1998-2002 by USDOC Office of Automotive Affairs

Growth in salaried worker employment since 1997 has depressed increases in overall corporate-level productivity.

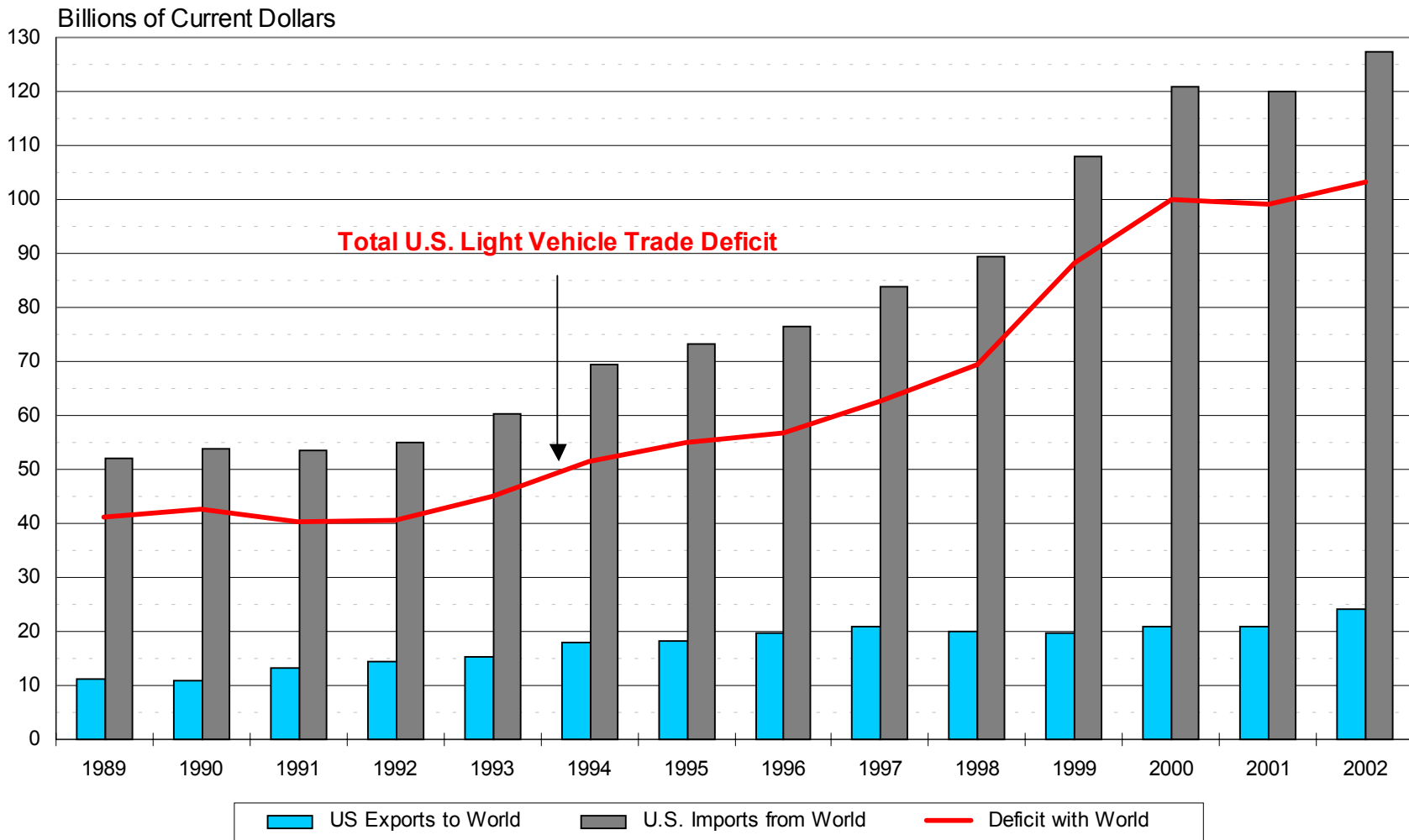
Chart 8



Source: Derived from USDOL Bureau of Labor Statistics and Ward's AutoInfoBank by USDOC Office of Automotive Affairs

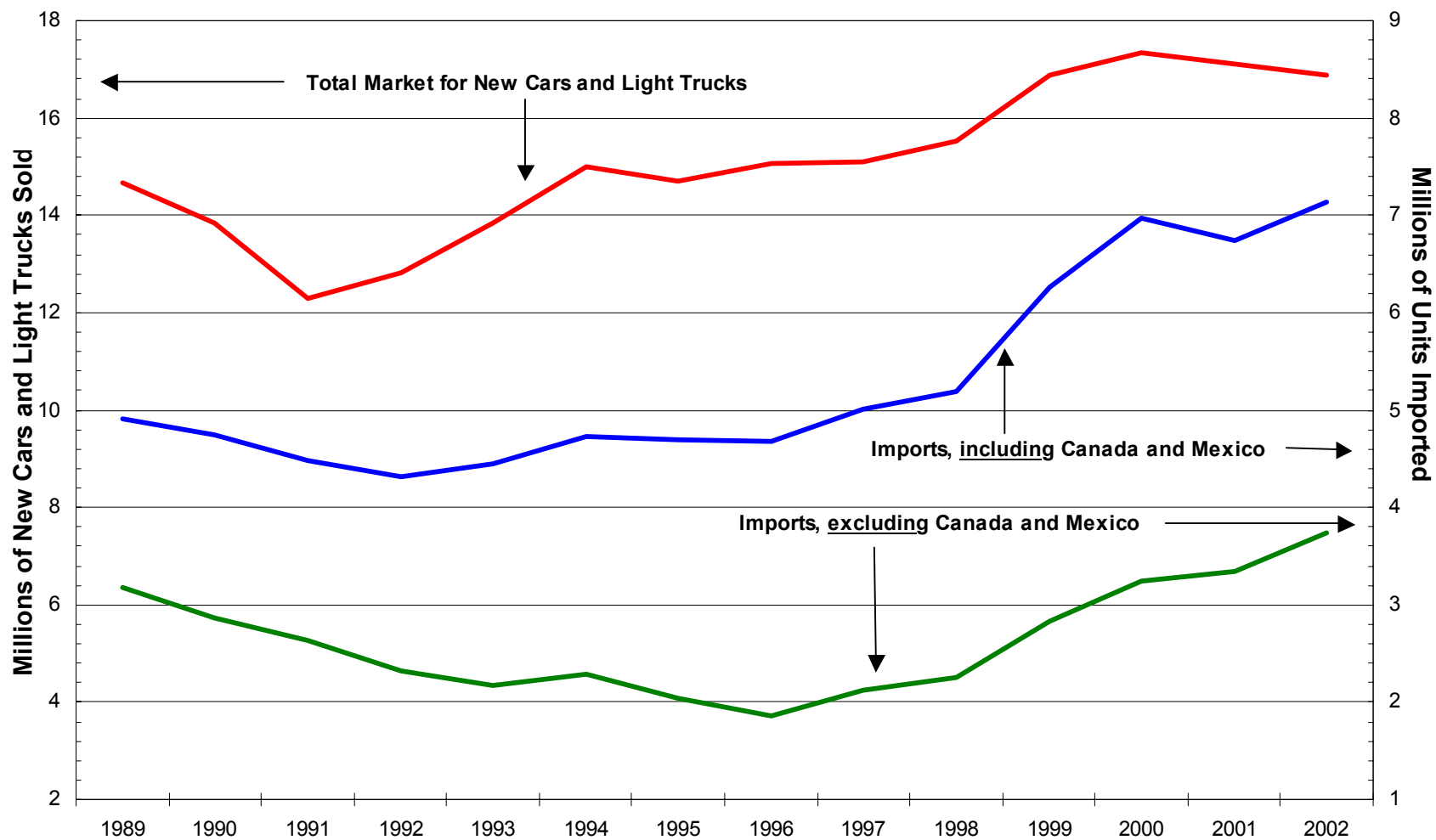
Although the value of exports reached an all-time high in 2002, so also did imports. The result was another record--the total deficit in light vehicles reached \$105 billion.

Chart 9



Source: US Census Bureau using USDOC Office of Automotive Affairs Industry Definition

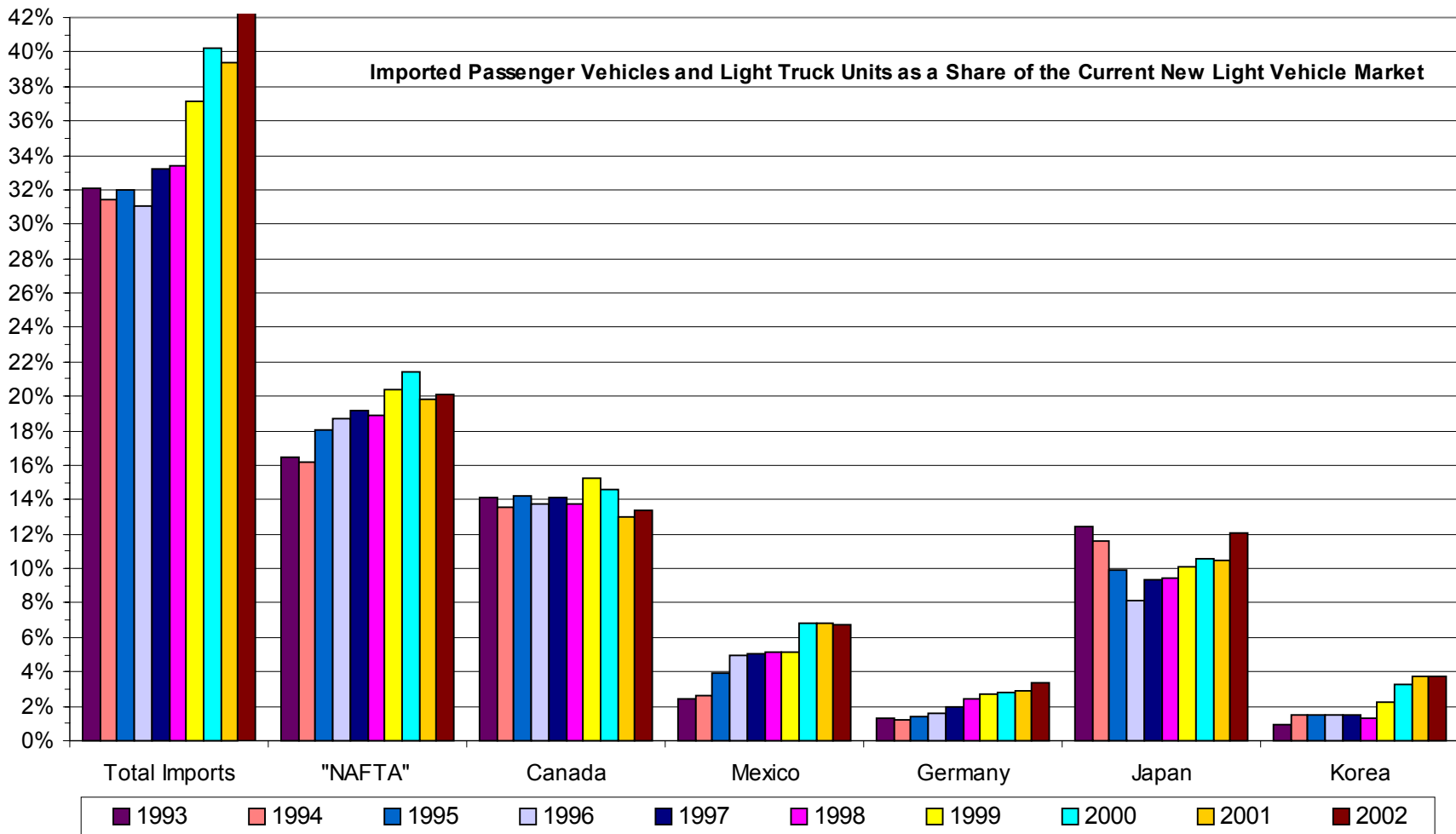
From 1989 through 2001, U.S. imports of light vehicles tracked changes in the domestic market, but broke that pattern in 2002.



Source: Ward's AutoInfoBank and US Census Bureau, adjusted by USDOC/Office of Automotive Affairs

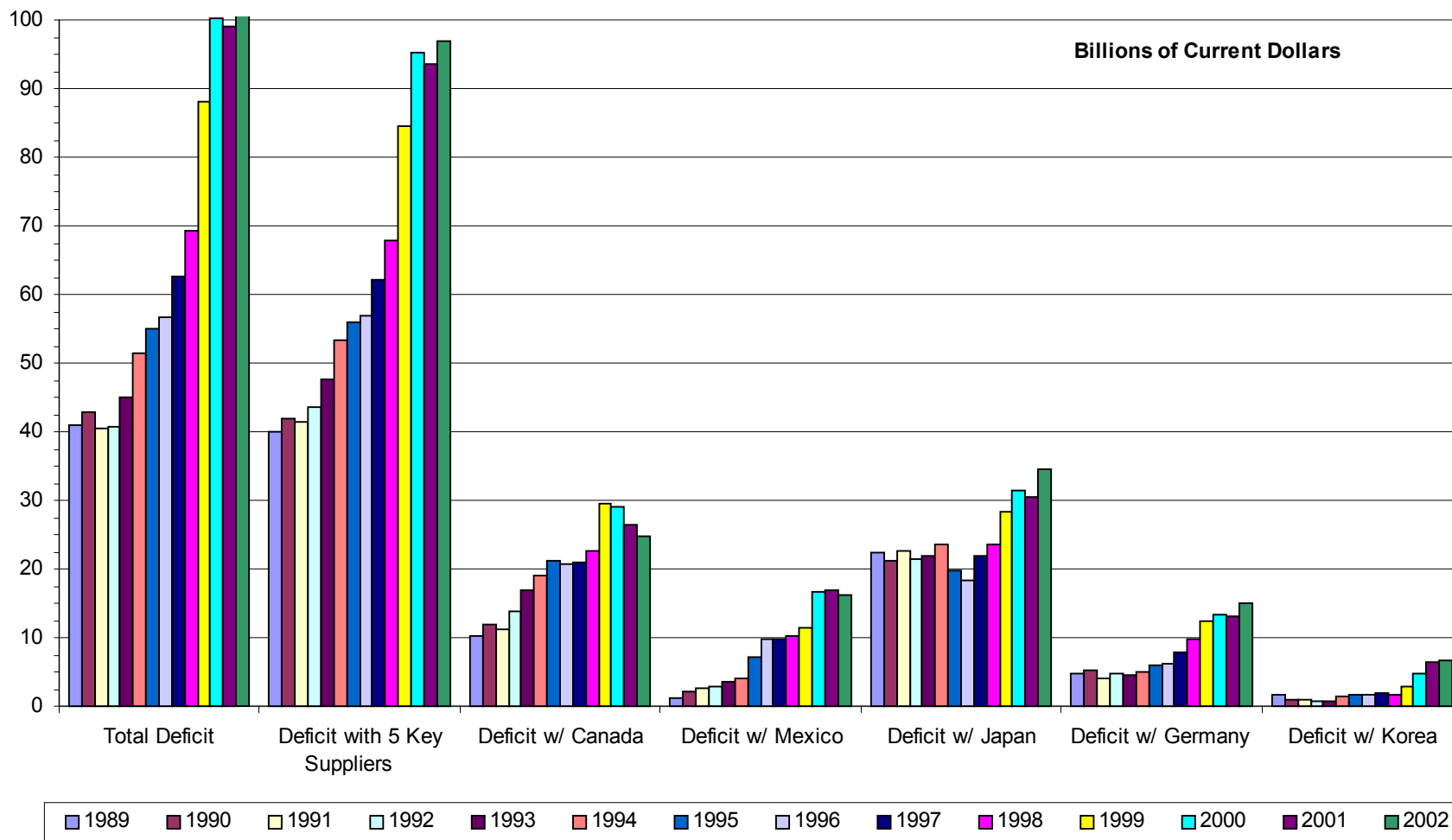
In 2002, true Imports (i.e., including those from Canada and Mexico) represented 42% of the U.S. light vehicle market, the highest level since reaching 44% in 1986.

Chart 11



Source: Ward's AutoInfoBank and USDOC Bureau of the Census, both adjusted by USDOC Office of Automotive Affairs

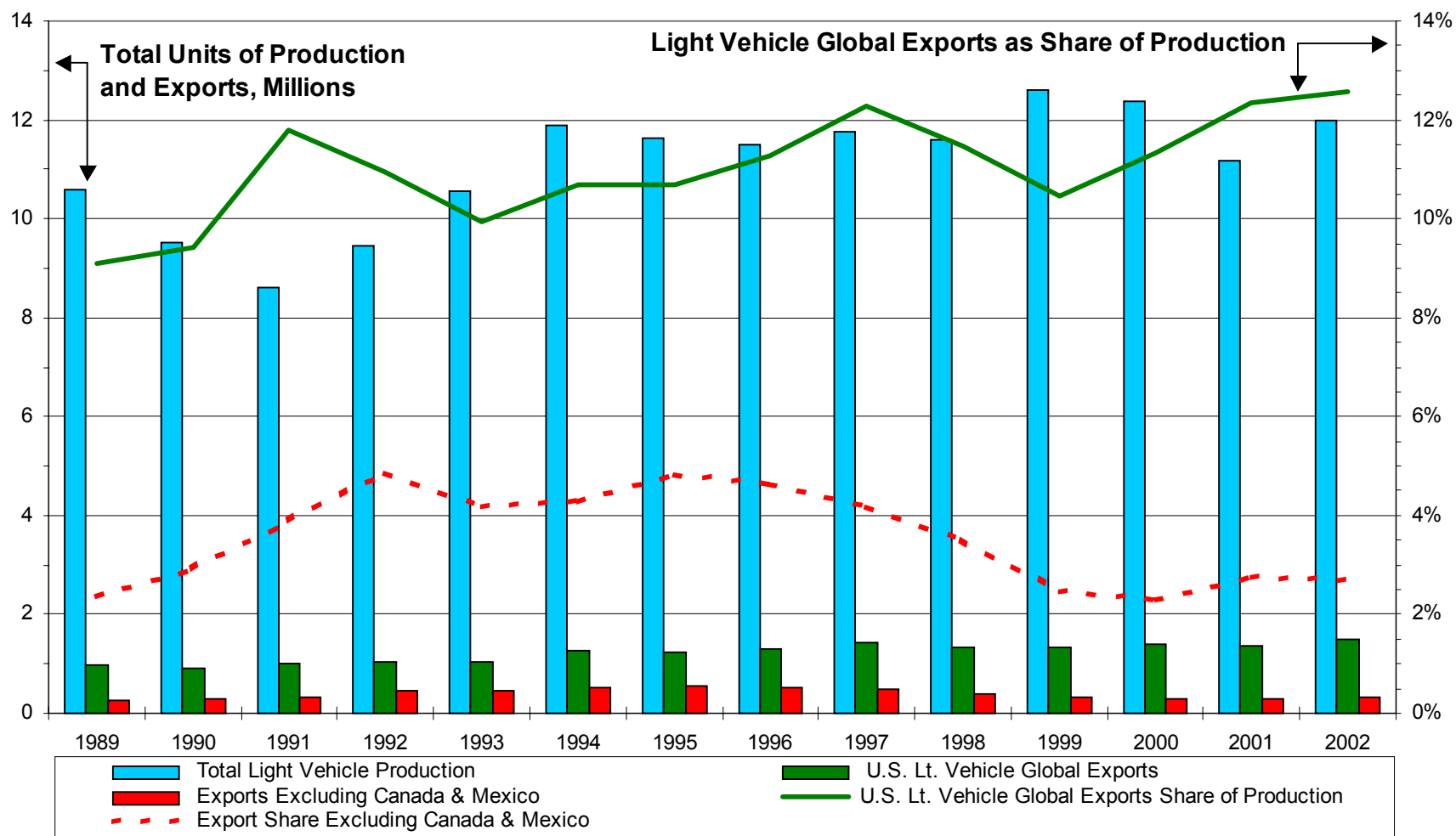
In 2002, the U.S. light vehicle trade deficit decreased by 6% with its NAFTA partners, but grew by 13% with Japan and Germany, and by 6% with Korea.



Source: US Census Bureau using USDOC Office of Automotive Affairs Industry Definition

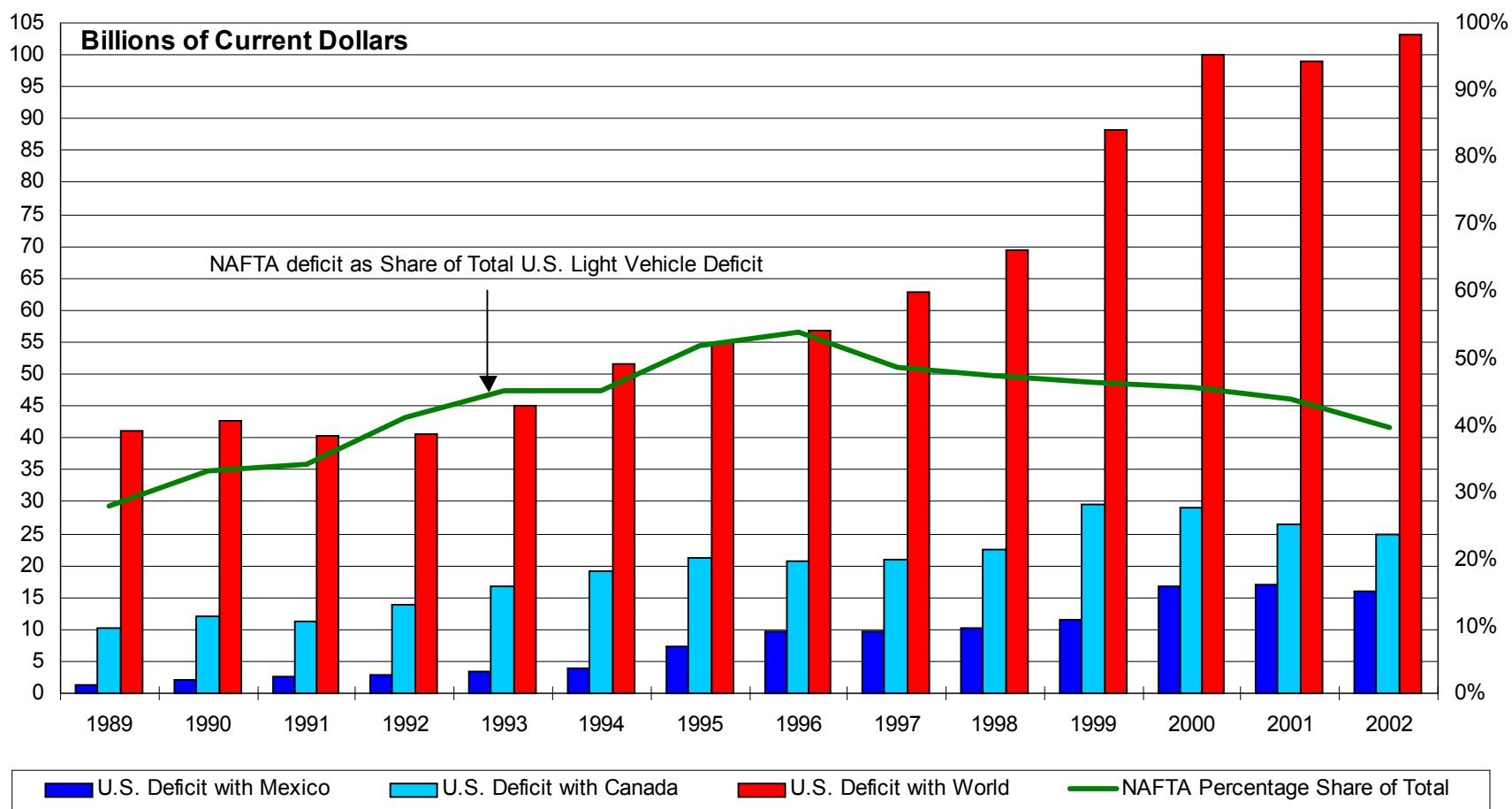
Total U.S. light vehicle exports again are approaching a 13% share of domestic production. When shipments to Canada and Mexico are excluded, however, their share is less than 3%.

Chart 13



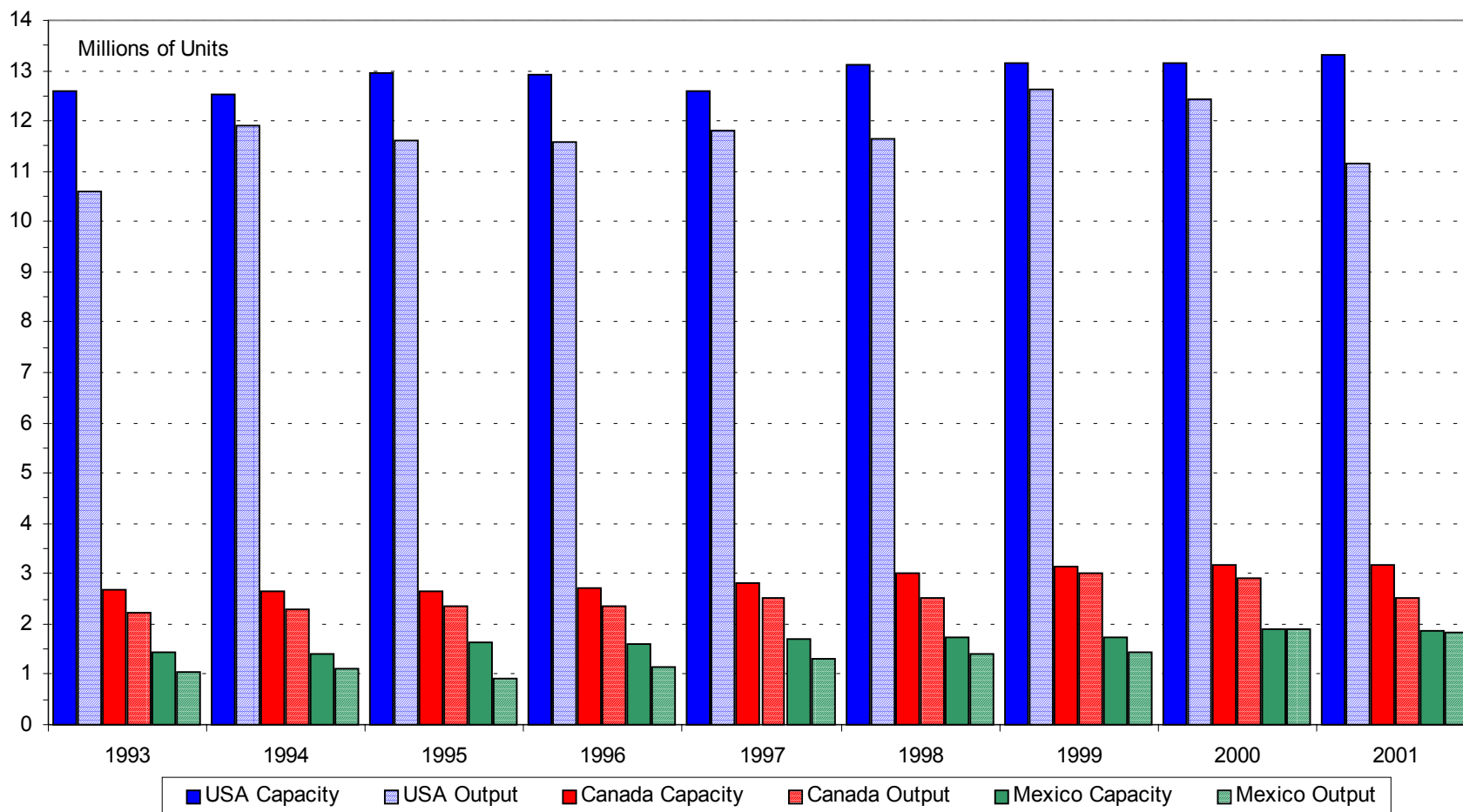
Source: Ward's AutoInfoBank and U.S. Census Bureau, both adjusted by USDOC Office of Automotive Affairs

The bilateral trade deficit has been shrinking with Canada for the past three years, while growing steadily with Mexico for more than a decade - until declining this year. Their combined share of the total U.S. light vehicle deficit has declined since 1996.



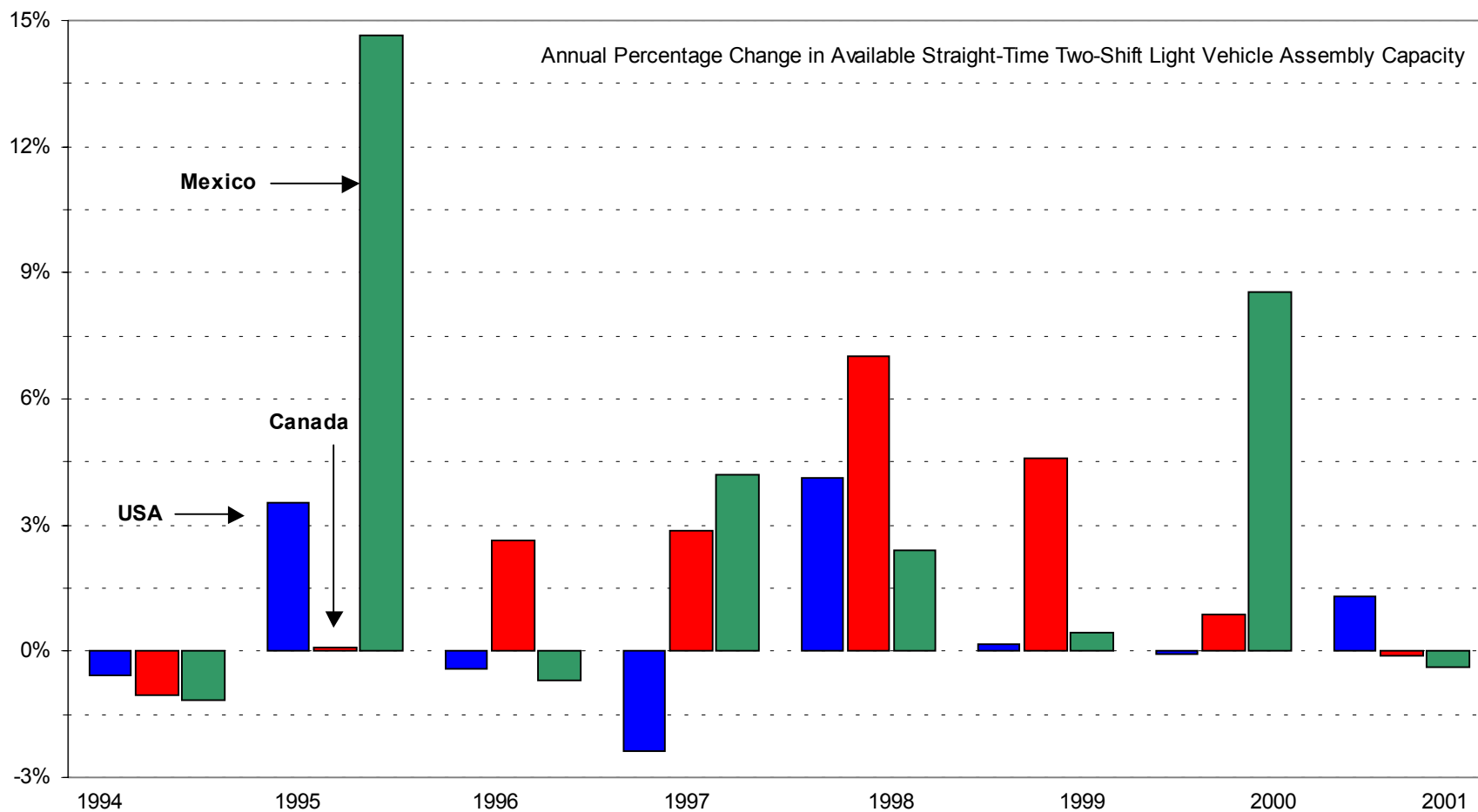
Source: US Census Bureau using USDOC Office of Automotive Affairs Industry Definition

Since 1993, light vehicle assembly capacity has increased in all three countries, growing the fastest in Mexico (30%). The absolute increase in U.S. capacity (714,000 units) was 63% larger than Mexico's 437,000 unit increase.



Source: Derived from 1994-2002 Annual Issues of "The Harbour Report" by USDOC Office of Automotive Affairs

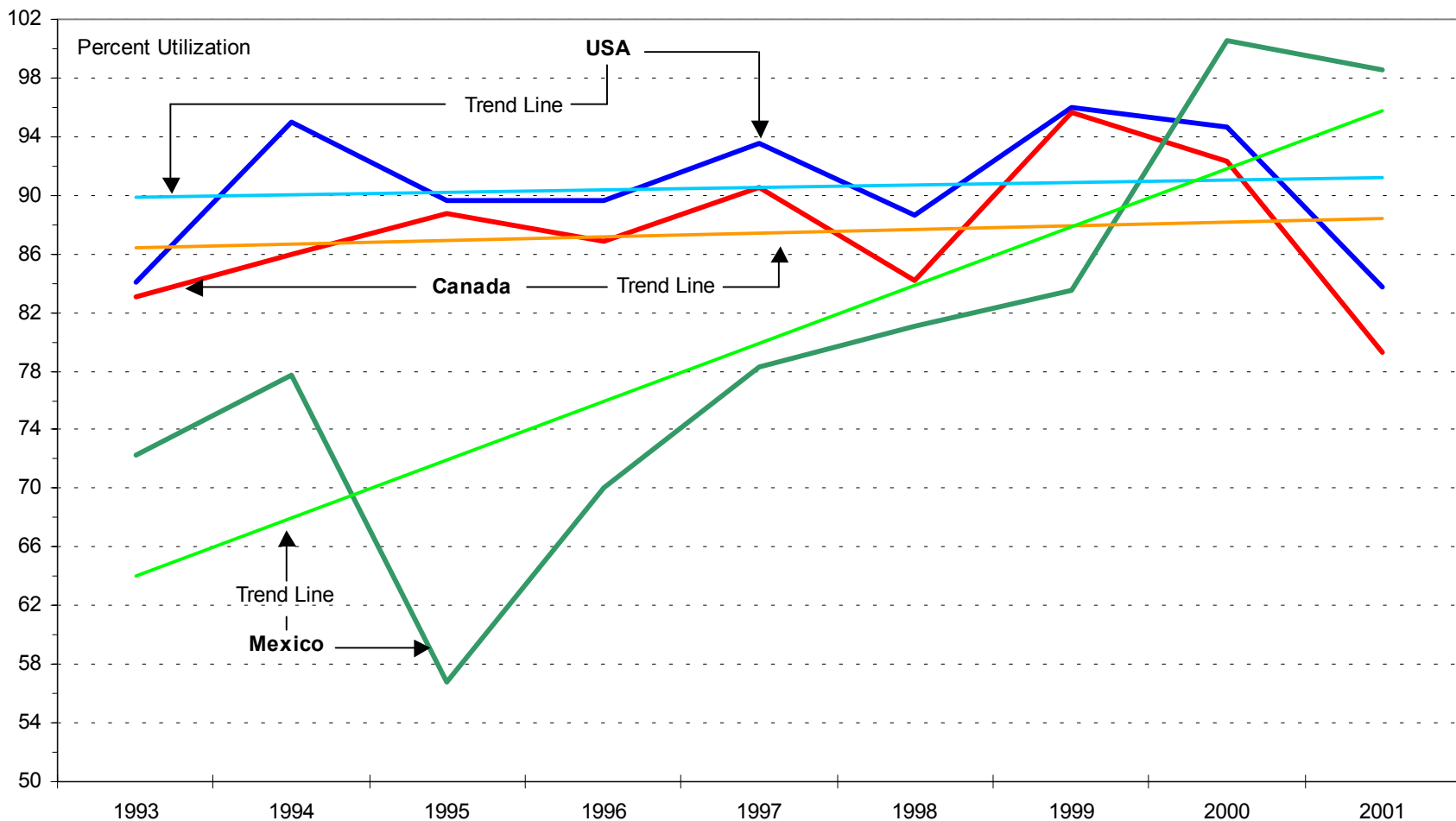
Annual available vehicle assembly capacity is a factor of new plants added, old plants closed, crews added, crews eliminated, extra hours, reduced hours, vehicle complexity, plus increases and decreases in assembly line efficiency.



Source: Derived from 1994-2002 Annual Issues of "The Harbour Report" by USDOC Office of Automotive Affairs

Light vehicle production-capacity utilization has risen sharply for Mexico following the "peso crash" in 1995. Utilization has grown slowly for the United States and Canada during this period, greatly influenced by plant additions and by the 2001 terrorist strikes.

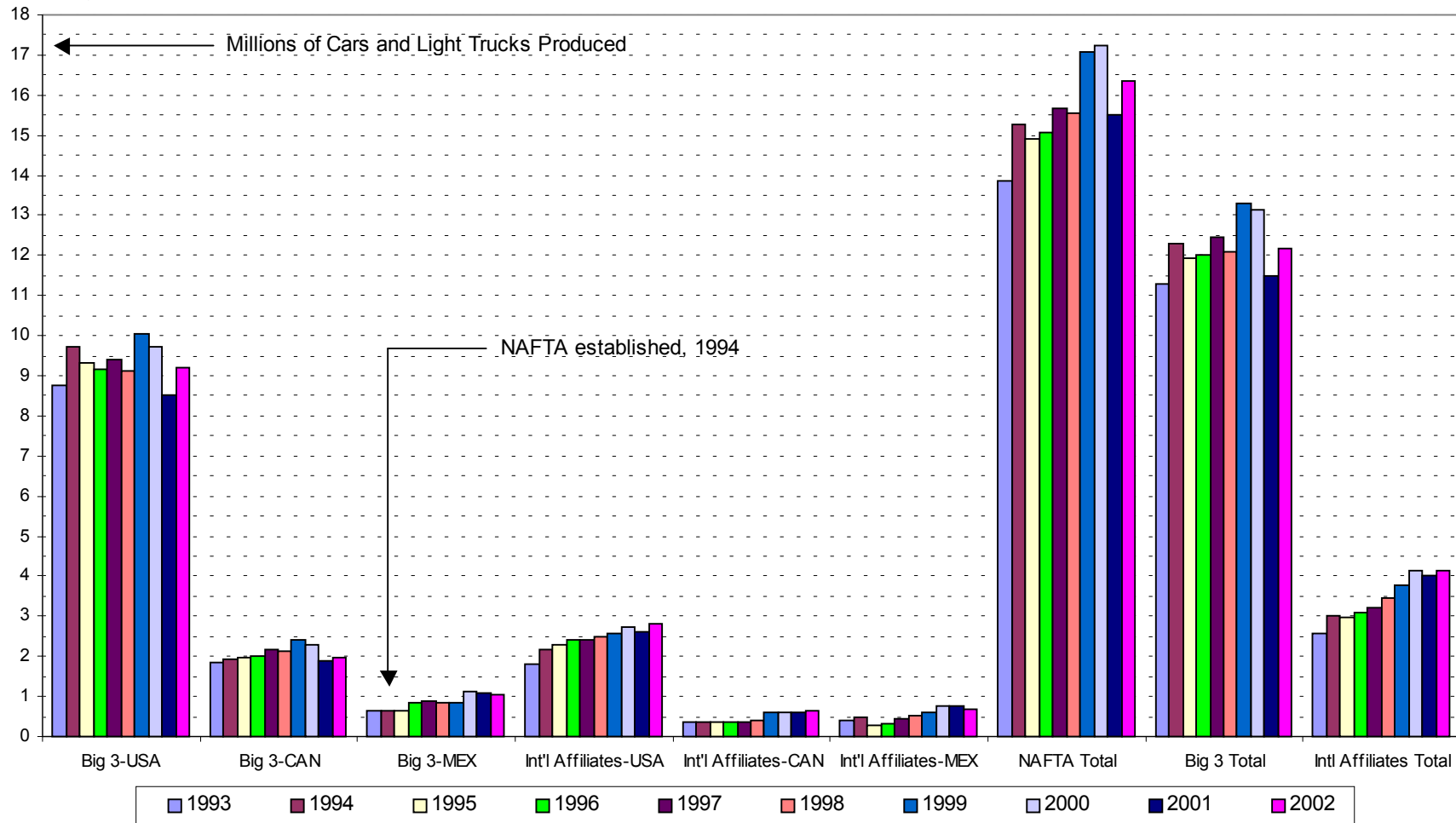
Chart 17



Source: Derived from 1994-2002 Annual Issues of "The Harbour Report" by USDOC Office of Automotive Affairs

In 2002, U.S. production by the American Big 3 was 5% larger than it was in 1993. Big 3 production in Mexico has averaged 10% of their U.S. production since 1994, was 13% in 2001, 11% in 2002.

Chart 18



Source: Derived from "The Harbour Report", Ward's AutoInfoBank, and Automotive News by USDOC Office of Automotive Affairs